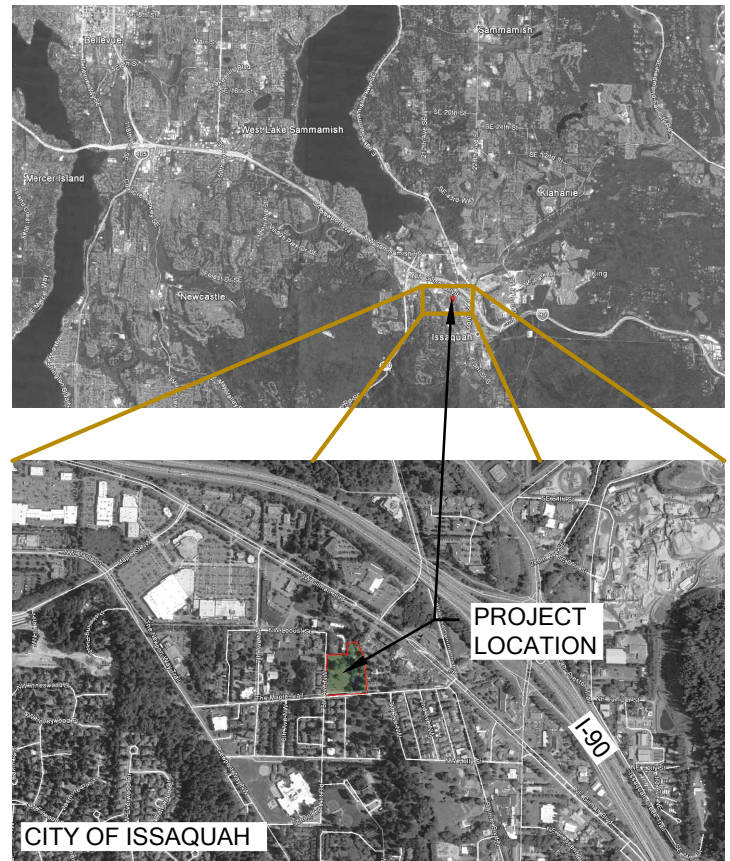


CITY OF ISSAQUAH

SALMON RUN NATURE PARK RESTORATION PROJECT

SHEET INDEX

1	COVER SHEET
2	EXISTING CONDITIONS
3	DEMO, TESC AND CONSTRUCTION ACCESS PLAN
4	TESC NOTES
5	TESC DETAILS (1 OF 2)
6	TESC DETAILS (2 OF 2)
7	OVERALL SITE PLAN
8	GRADING AND WOODY DEBRIS PLAN (1 OF 2)
9	GRADING AND WOODY DEBRIS PLAN (2 OF 2)
10	LOG STRUCTURE DETAILS (1 OF 4)
11	LOG STRUCTURE DETAILS (2 OF 4)
12	LOG STRUCTURE DETAILS (3 OF 4)
13	LOG STRUCTURE DETAILS (4 OF 4)
14	SLOPE STABILIZATION DETAIL
15	STREAM RESTORATION CROSS SECTIONS (1 OF 3)
16	STREAM RESTORATION CROSS SECTIONS (2 OF 3)
17	STREAM RESTORATION CROSS SECTIONS (3 OF 3)
18	PARK AMENITY DETAILS
19	PLANTING AND SEEDING PLAN
20	PLANTING AND SEEDING SCHEDULE
21	IMPACTS & MITIGATION PLAN
22	OVERALL CONSTRUCTION SEQUENCE (1 OF 2)
23	OVERALL CONSTRUCTION SEQUENCE (1 OF 2)



VICINITY MAPS



PURPOSE: FISH HABITAT ENHANCEMENT,
FLOODPLAIN CONNECTIVITY

DATUM:

ADJACENT PROPERTY OWNERS:
I. SEE JARPA APPLICATION

APPLICANT: CITY OF ISSAQUAH

REFERENCE #:

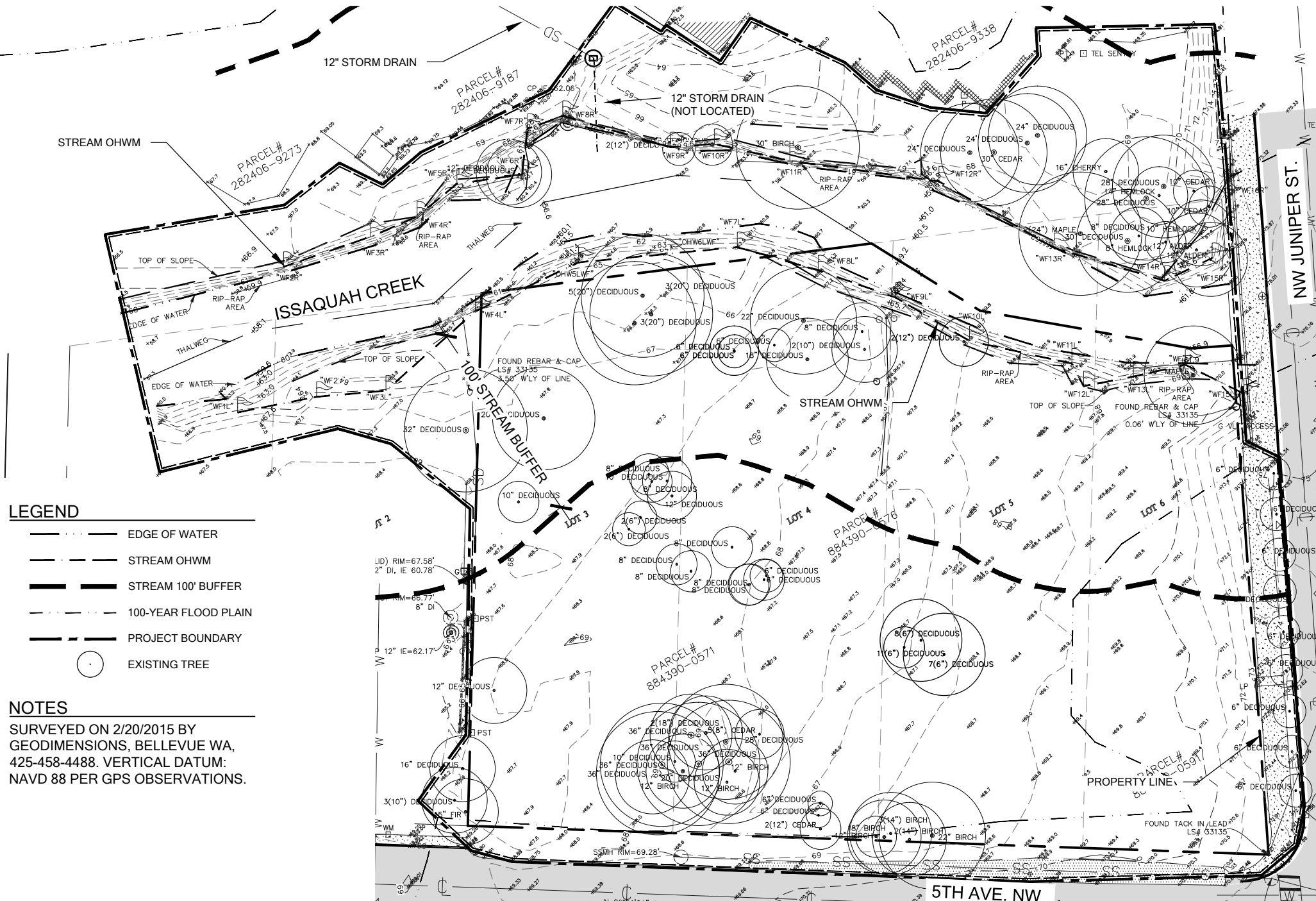
SITE LOCATION ADDRESS: NW JUNIPER ST AND
5TH AVE NW

PROPOSED: STREAM RESTORATION WITH ADDED
OVERFLOW CHANNEL AND LOG STRUCTURES
NEAR: AT: ISSAQUAH CREEK

COUNTY: KING

SHEET: 1 OF 23

DATE: 6/10/15



LEGEND

- EDGE OF WATER
- STREAM OHWM
- STREAM 100' BUFFER
- 100-YEAR FLOOD PLAIN
- PROJECT BOUNDARY
- EXISTING TREE

NOTES

SURVEYED ON 2/20/2015 BY
GEODIMENSIONS, BELLEVUE WA,
425-458-4488. VERTICAL DATUM:
NAVD 88 PER GPS OBSERVATIONS.

EXISTING CONDITIONS AND DELINEATION MAP

SCALE: 1" = 60'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

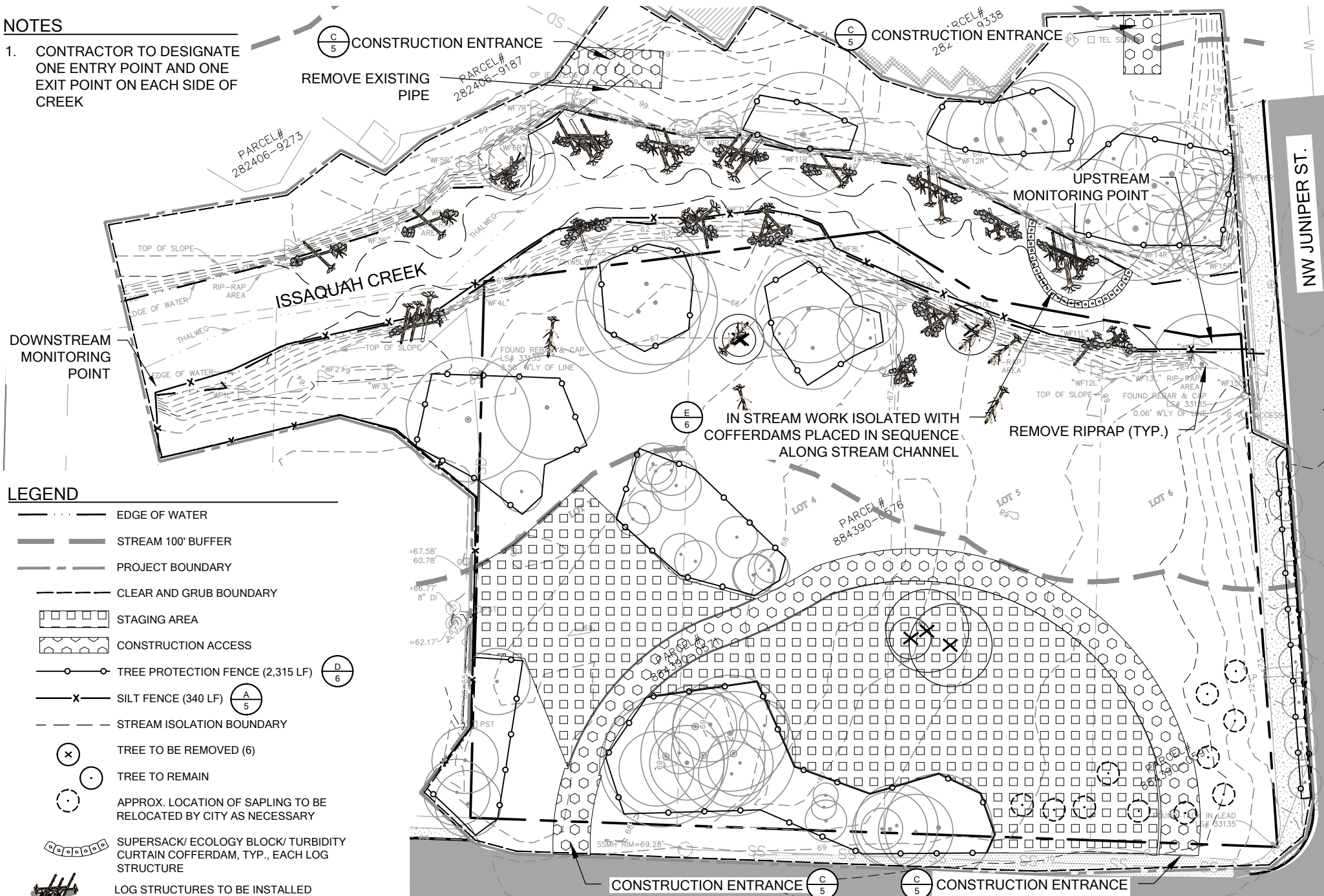
DATE: 6/10/15
SHEET: 2 OF 23

0 30' 60' 120'



NOTES

1. CONTRACTOR TO DESIGNATE ONE ENTRY POINT AND ONE EXIT POINT ON EACH SIDE OF CREEK



DEMO, TESC AND CONSTRUCTION ACCESS PLAN

SCALE: 1" = 60'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 3 OF 23

0 30' 60' 120'



1. TESC COORDINATION

- a. A Certified Erosion and Sediment Control Lead (CESCL) shall be designated by the contractor as the project's TESC supervisor and shall be responsible for the performance, maintenance, and review of TESC measures and for compliance with all permit conditions related to TESC. The TESC supervisor shall be certified by the Department of Ecology's training requirement.
- b. Contractor's Revised TESC Plans. The TESC measures shown on this plan are the minimum requirements for anticipated site conditions. The contractor may revise the TESC measures should they determine that there is a need to be modified to comply with the permit conditions or if there is a more effective and efficient way to meet the performance objectives for the duration of the project.
- c. Implementing Revised TESC Plans. The Contractor shall consult with the City prior to implementing any changes to ensure compliance with City permits, the contract, and that the changes do not negatively impact property or public safety.
- d. An onsite TESC preconstruction meeting shall be held before any work begins to review implementation of the TESC Plans and Report.

2. INITIAL TESC INSTALLATION

- a. All TESC facilities shown on the Plans shall be installed prior to or in conjunction with all clearing and grading so as to ensure that the sediment-laden water does not enter the City drainage system, surface waters, or wetlands. Adjacent properties shall be protected from sediment-laden runoff. If not specifically shown on the Plans or the TESC Report, installation shall be done in accordance with Appendix D of the King County Surface Water Design Manual, "Erosion and Sediment Control Standards", or as directed by the City.
- b. Clearing limits and tree protection boundaries shown on the Plans shall be clearly flagged by survey tape or fencing prior to construction. No disturbance beyond the clearing limits is allowed.
- c. Stabilized construction entrances shown on the Plans shall be installed at the beginning of construction and maintained for the duration of the project. Onsite roads and paved areas shall be kept clean to minimize turbidity in runoff. Additional measures, such as constructed wheel wash systems or wash pads, if shown on the Plans, are required to ensure sediment is not tracked out to city streets. Any dirt tracked onto city streets shall be swept as needed or as directed by the City of Issaquah. Street sweeping is not considered a TESC measure.
- d. Covering of exposed soils, including roadway embankments, that will not be disturbed for two consecutive days during the wet season (Oct 1 to April 30) or seven days during the dry season (May 1 to Sept 30) shall be done using approved

TESC methods (e.g. seeding, mulching, plastic covering, etc.). These time limits may be modified by the City to address specific site and weather conditions.

- e. Collection and treatment of runoff using ditches, swales, or pipes is required to route stormwater to collection points where it is treated prior to infiltration or discharge offsite. When shown on the Plans, temporary storage facilities such as ponds and tanks shall be installed at the onset of construction, regardless of the time of year.
- f. Discharge to the sanitary sewer is allowed upon approval from the City or Sammamish Plateau Water and Sewer District and the King County Industrial Waste Program. Pretreatment prior to discharge is required to meet County or Sewer District standards.
- g. Working in Streams. All in-water work within waters of the state shall be conducted during the HPA-specified fish window (included in Appendix X). Any equipment working within regulated waters shall be equipped with vegetable-based (non-toxic) hydraulic fluids, and appropriate methods shall be employed to divert the stream around the working area or isolate the working area from the stream using barriers.

3. ROUTINE TESC MAINTENANCE

- a. Maintenance over duration of project. All TESC measures shall be maintained by the TESC supervisor for the duration of construction, until final landscaping or other permanent site stabilization is complete
- b. Routine inspections. The TESC facilities shall be inspected by the TESC supervisor daily or more often during rainfall, and maintained to ensure proper functioning. Written documentation is required for discharges above 25 NTUs and shall be readily available at the project site.
- c. Offsite Pumping. The TESC supervisor shall notify the City of Issaquah prior to pumping any discharge offsite or to critical areas.
- d. Inactive Sites. TESC facilities on inactive sites shall be inspected and maintained a minimum of once a month or within 24 hours following a storm event.
- b. Preparation for wet season. Prior to the beginning of the wet season (Oct 1), all disturbed areas shall be reviewed to identify which ones can be seeded or otherwise covered in preparation for the winter rains. If cover measures are not established by Oct 1, additional TESC measures shall be required.

5. TURBIDITY MONITORING

- a. Monitoring Responsibility. The City's Inspector will measure the turbidity of stormwater leaving the site at the designated monitoring point(s) to verify compliance with turbidity discharge limits that are specified below.
- b. Monitoring Location. The turbidity monitoring location,

where the Inspector will measure turbidity for compliance, is shown on the TESC Plans. For project sites where designating a monitoring point is not feasible (e.g. flat sites or linear utility projects), the monitoring locations will be at the discretion of the Inspector.

- c. 25 NTU Action Level. The TESC Supervisor shall be notified of discharges above 25 NTUs. The TESC Supervisor shall review and modify the TESC measures as needed to keep discharges from the site below 25 NTUs.
- d. 100 NTU Discharge Limit. The contractor is responsible for installing and maintaining TESC measures so that discharge from the project site shall not exceed 100 NTUs at all times up to the 10 year/24 hour storm event. This event is defined as 3.5 inches of rainfall over a 24 hour period, as measured at the City's rain gage. Data from this rain gage is posted on the City's website.

6. OTHER POLLUTION CONTROL MEASURES

- a. Pollution Control. The contractor shall implement all requirements of the TESC Report and Stormwater Pollution Prevention Plan, including storage and handling of hazardous materials, concrete handling and wastewater disposal, spill kits and spill response, and other measures as needed.
- b. Control of Process Water. The contractor shall use the appropriate pollution control measures to ensure that no liquid products or contaminated water such as runoff from concrete slurry (known as process water) enters the storm drainage system, surface waters, or otherwise leaves the project site.

7. FINAL SITE STABILIZATION

- a. Final stabilization. The contractor shall install all TESC needed for final stabilization at completion of finish grading. This shall be done within two consecutive days during the wet season (Oct 1 to April 30), seven days during the dry season (May 1 to Sept 30) or as directed by the City.
- b. Removal of TESC Facilities. The contractor shall remove all TESC facilities, except those that will remain (such as seed and mulch) after final stabilization of the site.

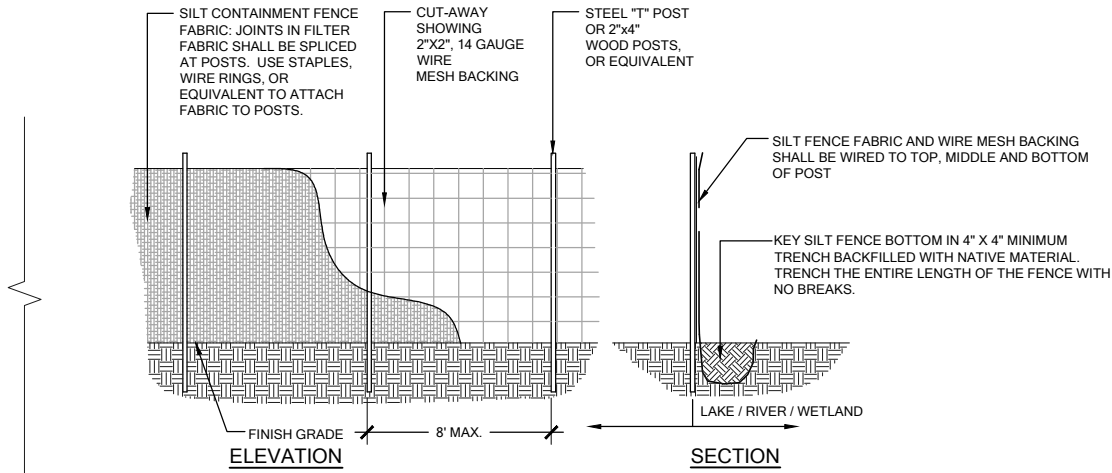
8. ENFORCEMENT

- a. Non-compliance with contract requirements, performance objectives and permits. Failure to provide and maintain approved TESC facilities, discharges that exceed the 100 NTU turbidity limit, or other failures to comply with the contract or permits are considered violations of the contract and may be subject to suspension of work and monetary penalties.
- b. Maintenance of TESC during suspension. If work is ordered to be suspended, the contractor shall continue to control erosion, pollution, and runoff during the shutdown and working days will be continued to be counted.

TESC NOTES

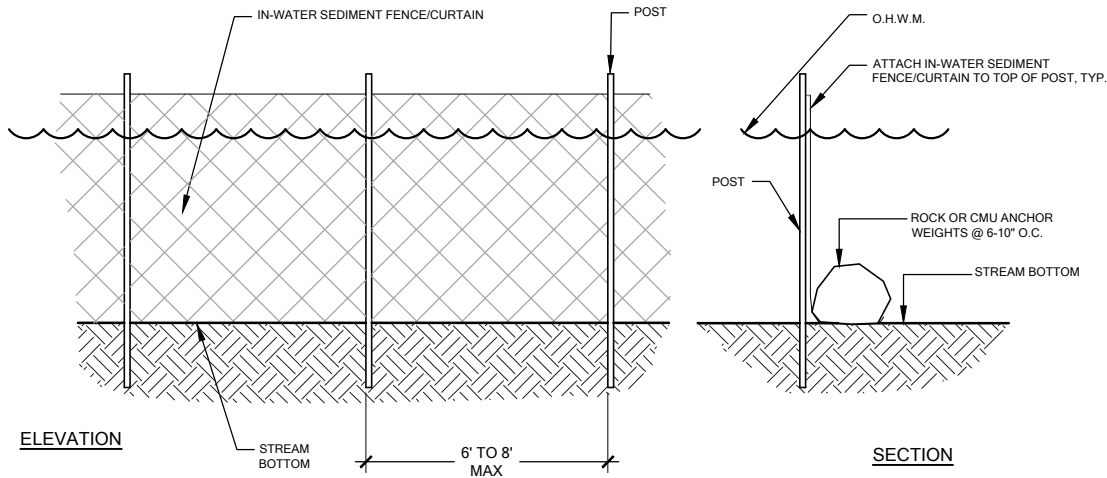
SILT FENCE MAINTENANCE STANDARDS:

1. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS 6" IN DEPTH.



A SILT FENCE

NTS

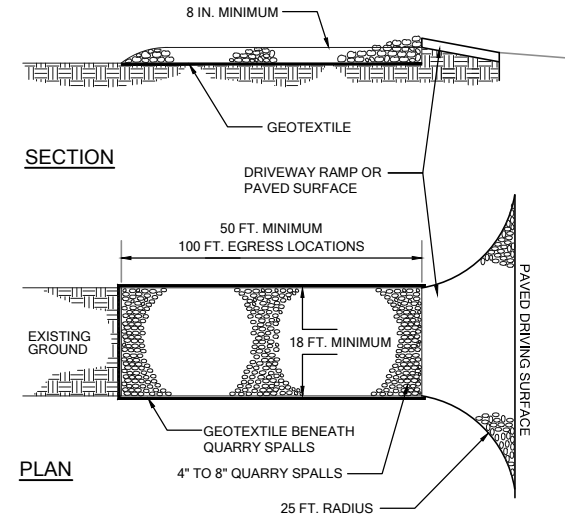


NOTES:

1. ALTERNATE METHODS, SUCH AS THE USE OF SAND BAGS CAN BE APPROVED FOR STREAM ISOLATION.
2. CITY TO AUTHORIZE ALL STREAM ISOLATION LOCATIONS AND METHODS AFTER CONTRACTOR DEVELOPS PLAN FOR IN-STREAM TESC FOR HABITAT STRUCTURE INSTALLATION.

B IN-WATER SEDIMENT CURTAIN (IF REQUIRED)

NTS



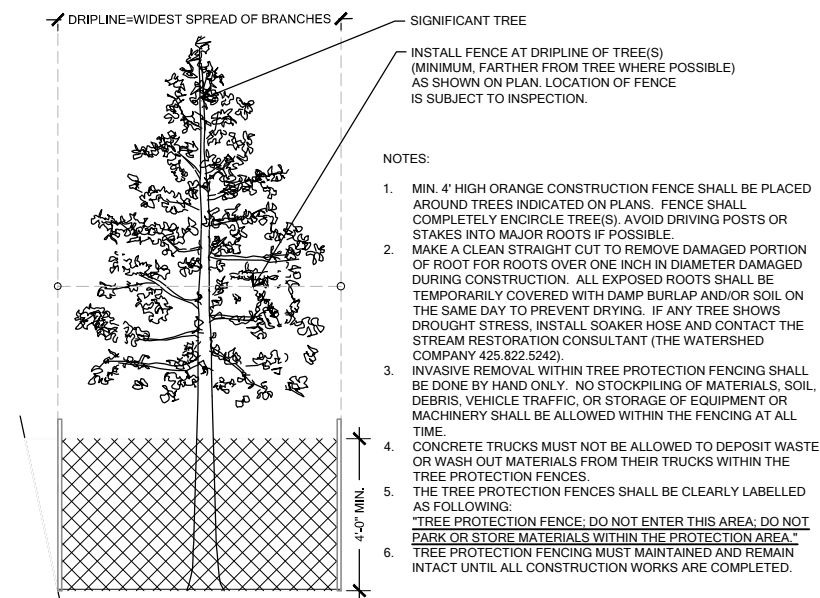
NOTES:

1. PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD OR AS DIRECTED BY THE CITY CLEARING AND GRADING INSPECTOR.
2. PAD SHALL BE INSTALLED IN PLANTING STRIP AS APPROPRIATE.
3. PAD THICKNESS SHALL BE INCREASED IF SOIL CONDITIONS DICTATE AND/OR PER THE DIRECTION OF THE CITY CLEARING AND GRADING INSPECTOR.
4. MINIMUM DIMENSIONS MAY BE MODIFIED AS REQUIRED BY SITE CONDITIONS UPON APPROVAL OF THE CITY CLEARING AND GRADING INSPECTOR.

C STABILIZED CONSTRUCTION ENTRANCE

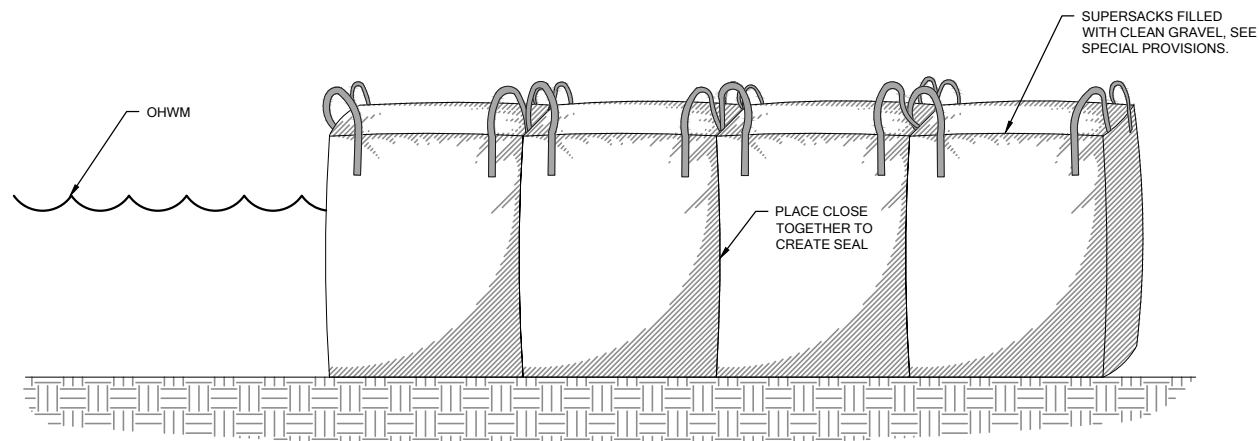
NTS

TESC DETAILS (1 OF 2)



D TREE PROTECTION FENCING

NTS



ELEVATION

E SUPERSACK COFFER DAM ALTERNATE TO SEDIMENT CURTAIN











NTS

TESC DETAILS (2 OF 2)

NOTES:

1. FOR LOG STRUCTURE, GRADING, AND TRAIL LAYOUT SEE SHEETS 8-9
2. FOR LOG STRUCTURE DETAILS SEE SHEETS 10-13
3. FOR TRAIL DETAILS SEE SHEET 18
4. FOR PLANTING SEE SHEETS 19-20
5. FOR CROSS SECTIONS SEE SHEETS 15-17

LEGEND

- — — — — STREAM OHWM
- — — — — STREAM 100' BUFFER
- - - - - 100-YEAR FLOOD PLAIN
- — — — — PROJECT BOUNDARY
-  LOG STRUCTURES
-  EXISTING CONTOURS
-  PROPOSED CONTOURS
-  TRAIL
-  BENCH (NIC, BY CITY)
-  OVERLOOK
-  SIGN (NIC, BY CITY)
- — — — — FENCE (NIC, BY CITY)
-  BOARDWALK (NIC, BY CITY)
-  PLANTING AREAS (SEE PLANTING PLAN ON SHEETS 19-20)
-  HYDROSEED LAWN

OVERALL SITE PLAN

SCALE: 1" = 60'-0"

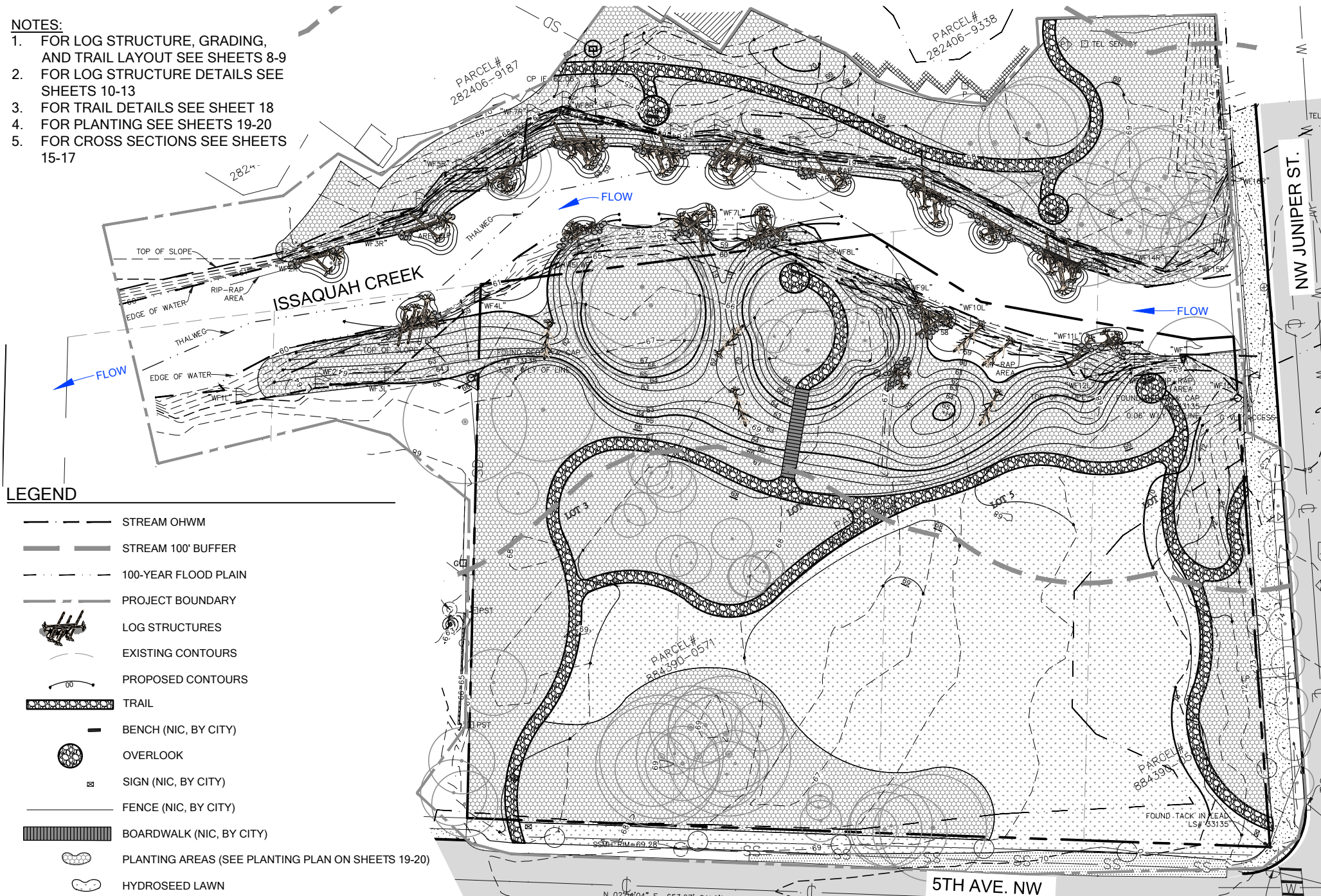
IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 7 OF 23

0 30' 60' 120'



INSTALL NEW TYPE 2 CATCH BASIN,
CONNECTED TO EXISTING STORM DRAIN
INSTALL NEW 12" OUTFALL PIPE
FROM CATCH BASIN TO BANK

EMBANKMENT FILL
AREA AND THE EXTENT
OF THE COIR FABRIC
INSTALLATION AREA.
SEE DETAIL.

REMOVE ROCK BARB,
REGRADE BANK AND
INSTALL LOG STRUCTURE

ISSAQUAH CREEK

FLOW

FLOW

NW JUNIPER STREET

LEGEND

- STREAM OHWM
- STREAM 100' BUFFER
- LOG STRUCTURES
- EXISTING CONTOURS
- PROPOSED CONTOURS
- GRADING LIMIT
- TRAIL
- BENCH (NIC, BY CITY)
- OVERLOOK
- SIGN (NIC, BY CITY)
- FENCE (NIC, BY CITY)
- BOARDWALK (NIC, BY CITY)
- EXTENDED STORM DRAIN
- ⊕ TYPE 2 CATCH BASIN

MATCHLINE NEXT SHEET

GENERAL LOG STRUCTURE NOTES: (SEE SPECIAL PROVISIONS FOR MORE INFO)

- ANCHOR LOGS ACCORDING TO THE LOG STRUCTURE AND ANCHORING DETAILS AS CALLED OUT ON THE PLAN.
- CONSTRUCT TURBIDITY CURTAIN OR SUPERSACK COFFER DAM AROUND LOG INSTALLATIONS PRIOR TO IN-WATER WORK. SEE COFFER DAM DETAIL.
- LAYOUT LOG STRUCTURES PER PLAN AND DETAILS, HOWEVER FIELD ADJUSTMENT MAY BE NECESSARY. CONFIRM LAYOUT IN FIELD WITH ASSISTANCE FROM THE STREAM RESTORATION CONSULTANT.
- LOG PROTRUSION DISTANCE VARIES. LOGS WHICH PROTRUDE INTO THE STREAM CHANNEL ARE TO BE ANGLED SLIGHTLY DOWNWARDS AWAY FROM THE BANK. THE TOP OF THE LOG SHALL BE FLUSH WITH OR SLIGHTLY BURIED BELOW THE FINISH SURFACE. TRIM ROOTS AND BRANCHES AS DIRECTED BY THE STREAM RESTORATION CONSULTANT.
- DO NOT DISTURB THE EXISTING RIP-RAP BANK ALONG THE EAST SIDE OF THE EXISTING CREEK. PLACE EMBANKMENT FILL AND LOG STRUCTURES IN FRONT OF THE EXISTING BANK. FIELD ADJUST UNDER THE DIRECTION OF THE RESTORATION CONSULTANT IF NECESSARY.
- PLACE MIN. THREE (3) CUBIC YARDS OF ROUNDED COBBLE/BOULDER MIX PER LOG STRUCTURE. PLACE THREE (3) CUBIC YARDS OF COBBLE/BOULDER MIX AT THE BANK ON EACH END OF THE STREAM RESTORATION AREA TO CONTROL EROSION.
- STORM DRAIN MODIFICATIONS TO BE PERFORMED UNDER FORCE ACCOUNT AFTER SCOPE OF REPAIRS IS DETERMINED.

GRADING NOTES

- OVERFLOW CHANNEL TO BE FREE DRAINING WITH NO DEPRESSIONS
- TRAIL RUNNING SLOPE VARIES (SEE PLAN) BUT SHALL NOT EXCEED 8%.
- TRAIL CROSS SLOPE PER DETAIL. CROSS SLOPE SHALL NOT EXCEED 2%.
- CONTRACTOR MAY RELOCATE TREE PROTECTION FENCE AS NEEDED TO INSTALL TRAILS AND OVERLOOKS, WHILE PROTECTING TREES TO THE MAXIMUM EXTENT FEASIBLE AND PER THE CITY OF ISSAQUAH REQUIREMENTS.

GRADING AND WOODY DEBRIS PLAN (1 OF 2)

SCALE: 1" = 60'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

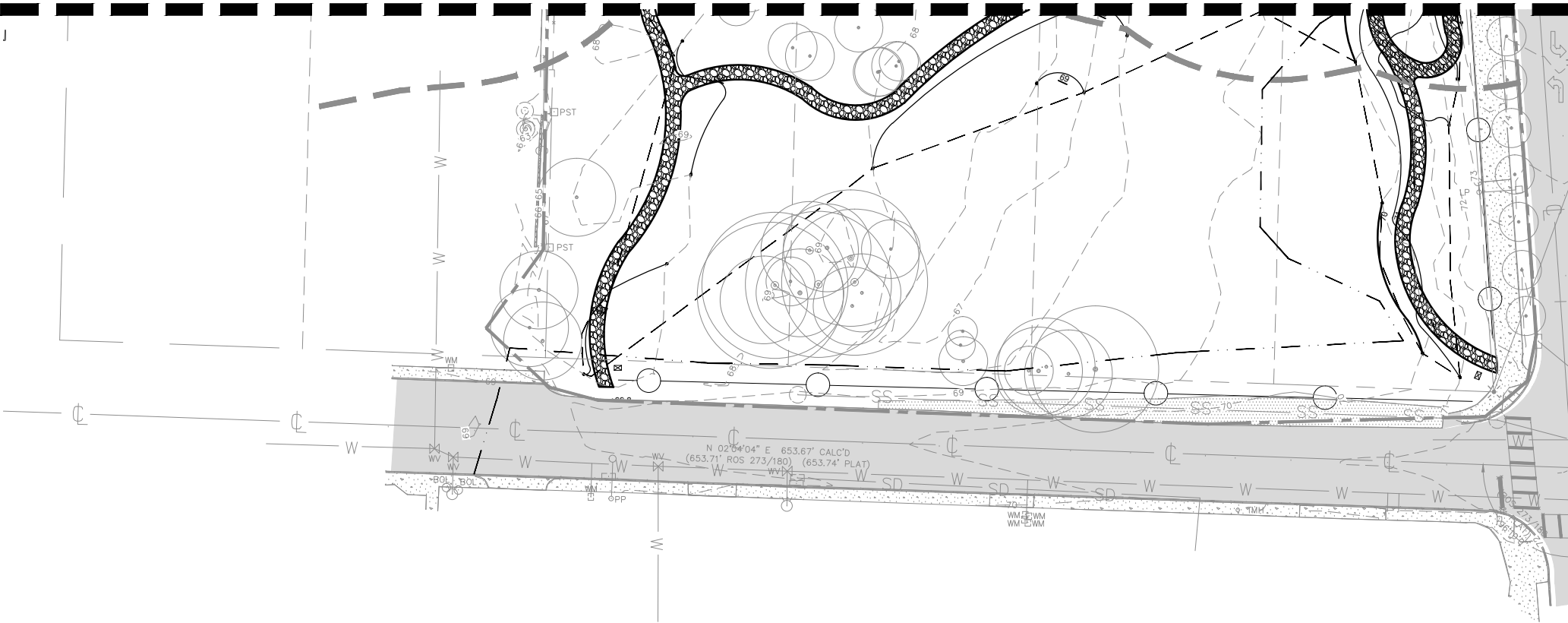
PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 8 OF 23

0 30' 60' 120'



MATCHLINE PREVIOUS SHEET



LEGEND

	STREAM OWM		LOG STRUCTURES
	STREAM 100' BUFFER		EXISTING CONTOURS
	BENCH (NIC, BY CITY)		PROPOSED CONTOURS
	OVERLOOK		GRADING LIMIT
	SIGN (NIC, BY CITY)		TRAIL
	FENCE (NIC, BY CITY)		
	BOARDWALK (NIC, BY CITY)		
	EXTENDED STORM DRAIN		
	TYPE 2 CATCH BASIN		

GRADING AND WOODY DEBRIS PLAN (2 OF 2)

SCALE: 1" = 60'-0"

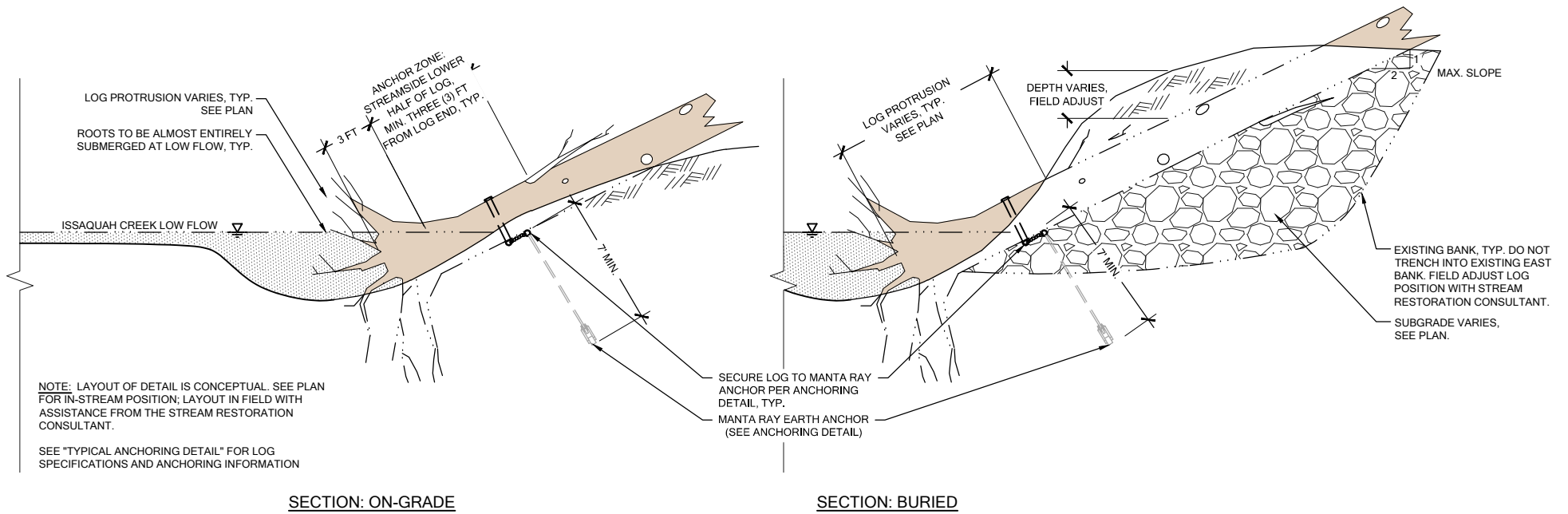
IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

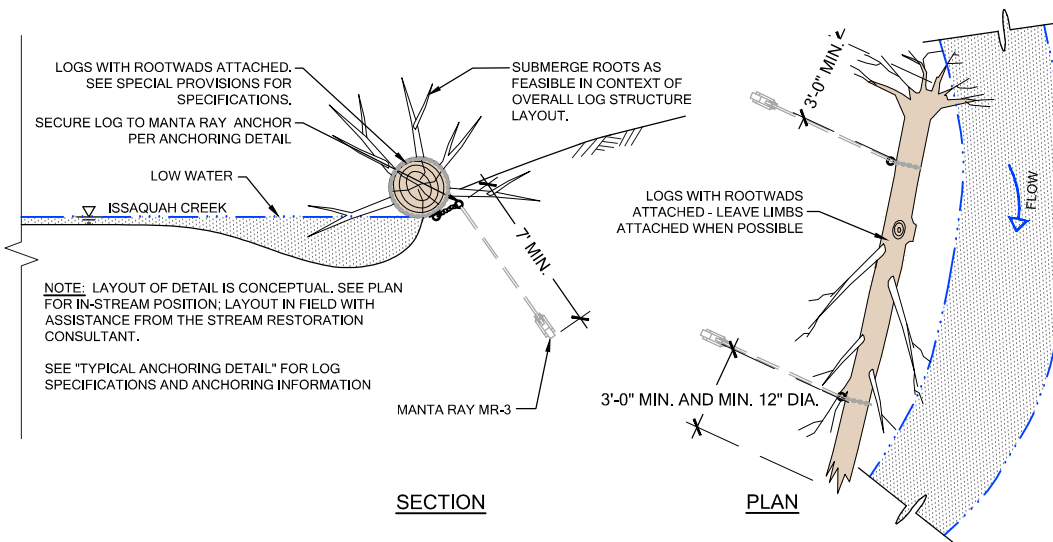
DATE: 6/10/15
SHEET: 9 OF 23





A TYPICAL FALLEN LOG DETAIL - ON-GRADE AND BURIED

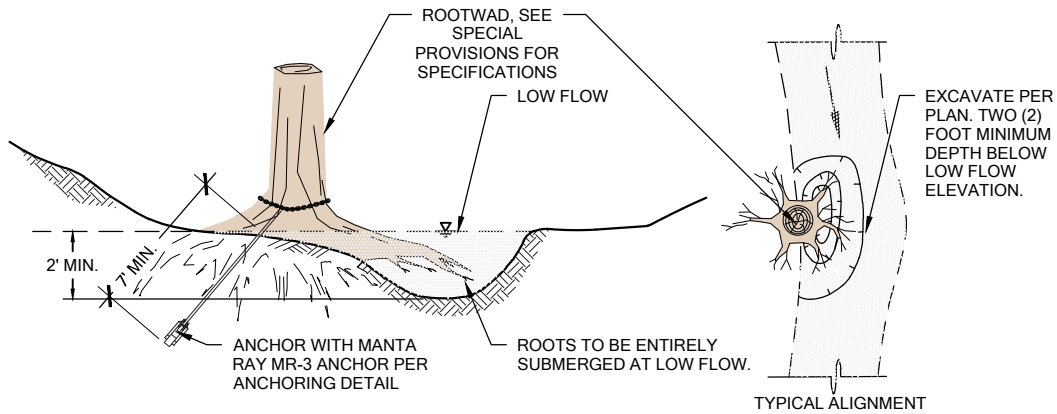
NTS



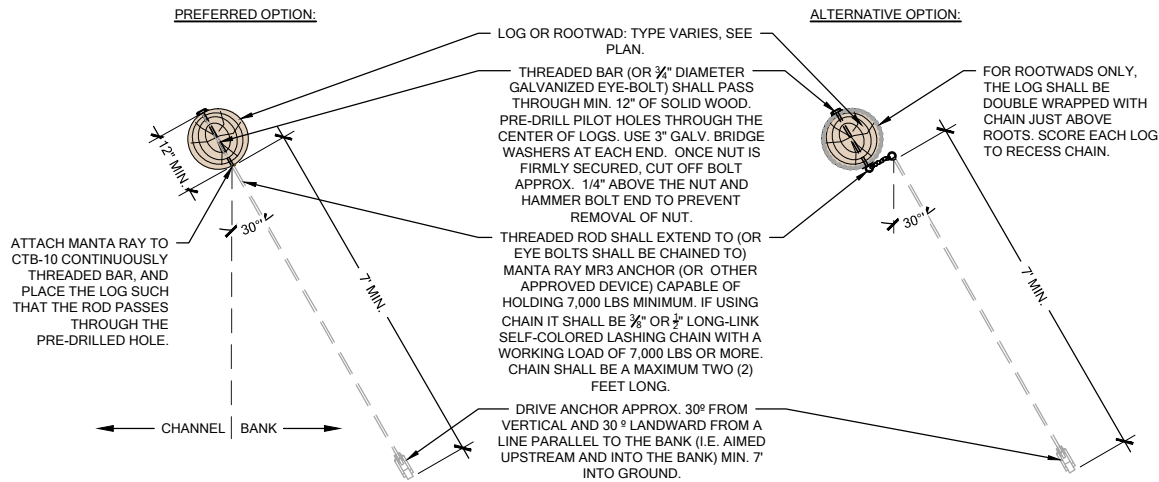
B TYPICAL BANK LOG DETAIL

NTS

LOG STRUCTURE DETAILS (1 OF 4)

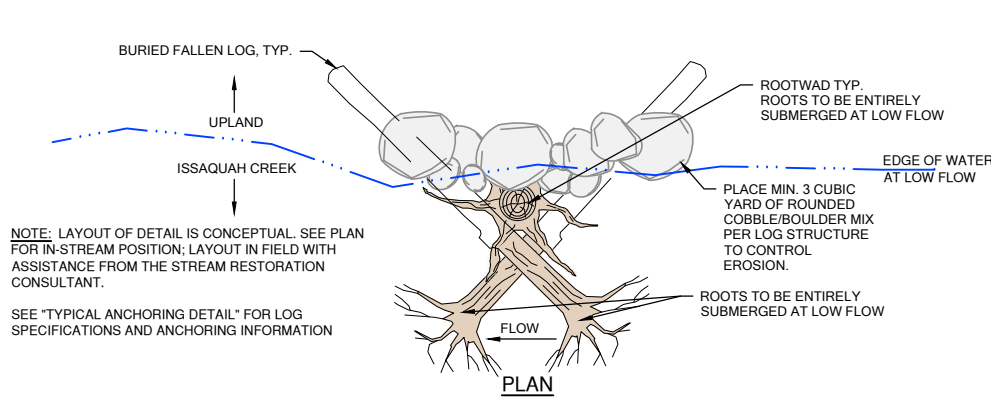


C TYPICAL ROOT WAD DETAIL
NTS

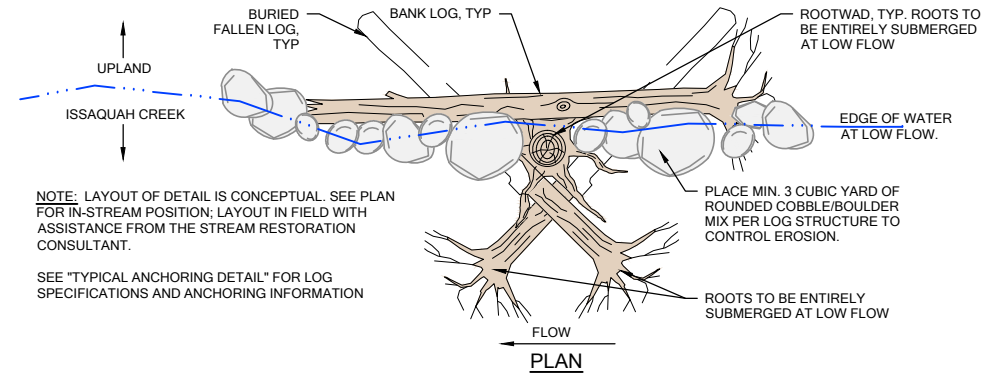


D TYPICAL ANCHORING DETAIL
NTS

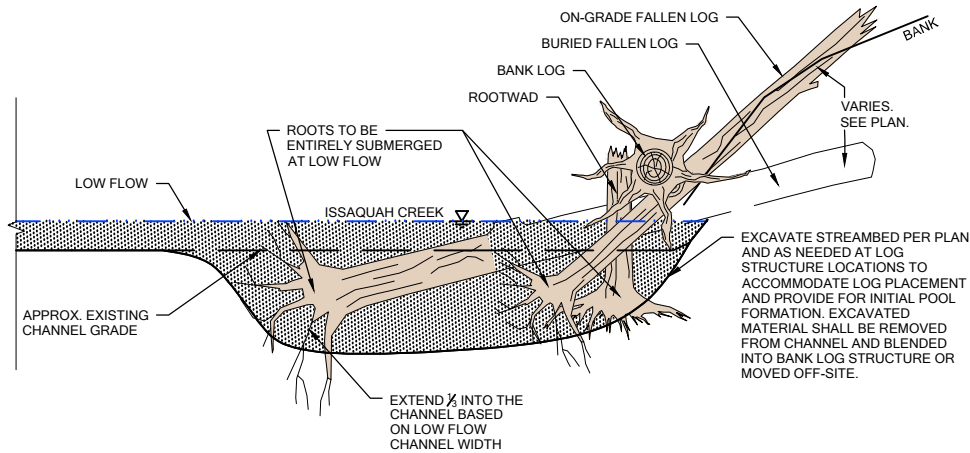
LOG STRUCTURE DETAILS (2 OF 4)



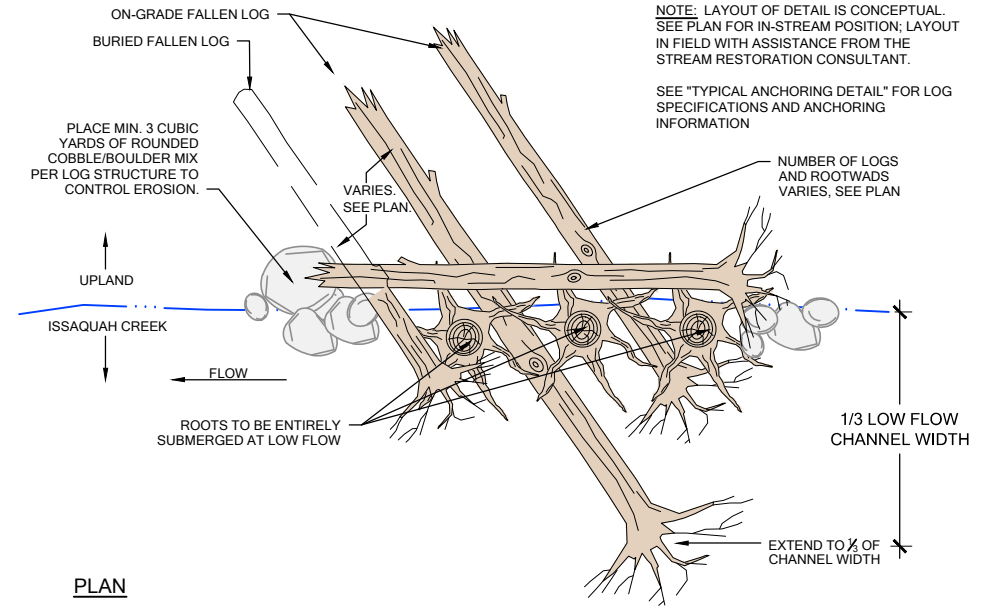
E SIMPLE TRIANGLE
NTS



F EXPANDED TRIANGLE
NTS

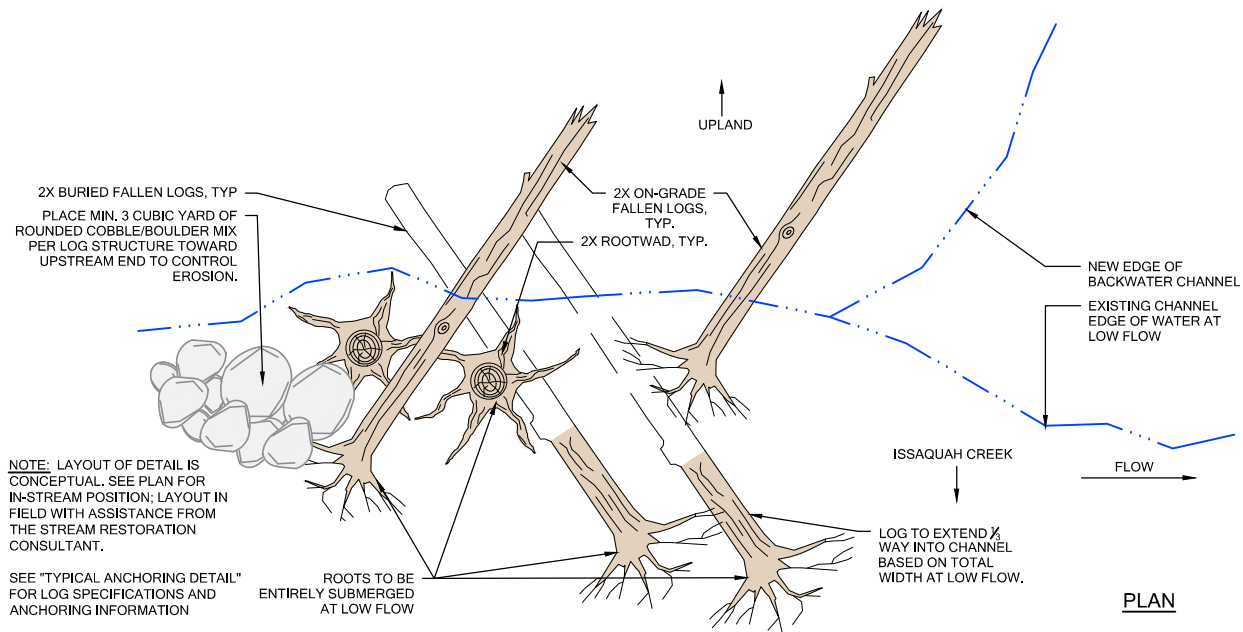


G TYPICAL LOG CLUSTER
NTS



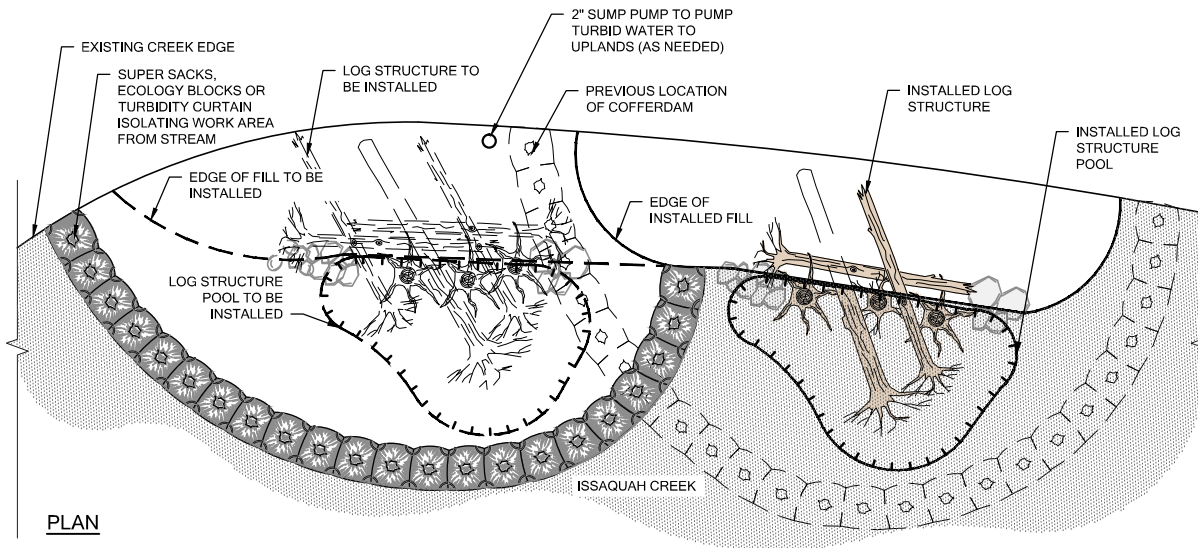
H LOG STRUCTURE DETAILS (3 OF 4)
NTS

LOG STRUCTURE DETAILS (3 OF 4)



H BACKWATER ENTRANCE CLUSTER

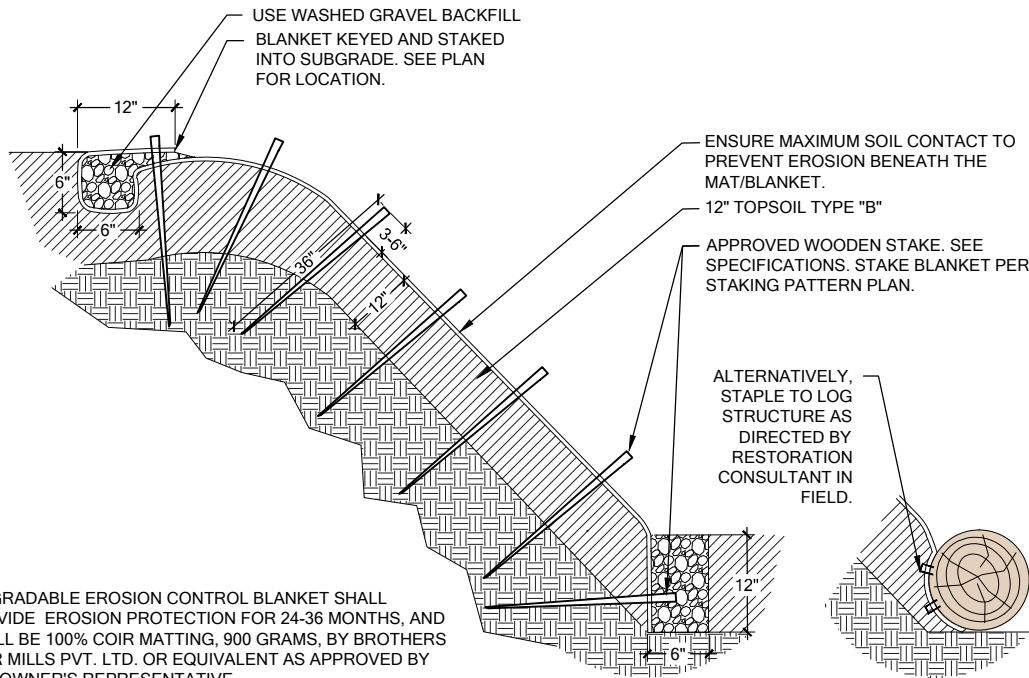
NTS



I COFFERDAM DETAIL

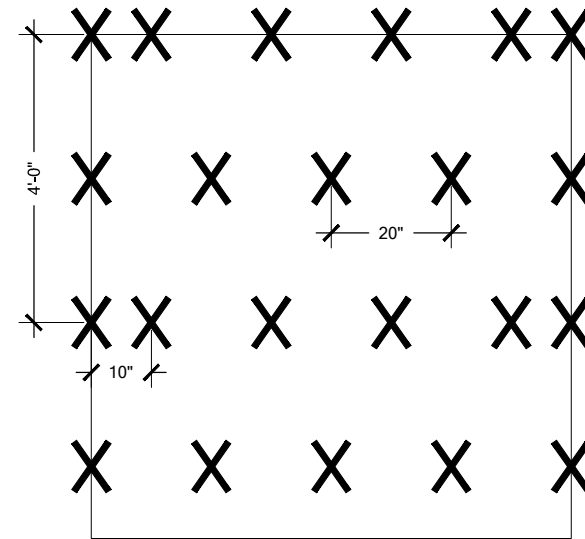
NTS

LOG STRUCTURE DETAILS (4 OF 4)



NOTES:

1. BIOGRADABLE EROSION CONTROL BLANKET SHALL PROVIDE EROSION PROTECTION FOR 24-36 MONTHS, AND SHALL BE 100% COIR MATTING, 900 GRAMS, BY BROTHERS COIR MILLS PVT. LTD. OR EQUIVALENT AS APPROVED BY THE OWNER'S REPRESENTATIVE.
2. BLANKET SHALL BE CUT LARGER THAN THE INSTALLATION AREA SHOWN ON THE CONTRACT DRAWINGS IN ORDER TO EXTEND BEYOND THE EDGES AND KEY INTO THE SUBGRADE AS SHOWN.
5. CLEAR ANY WEEDS OR DEBRIS FROM THE INSTALLATION AREA BEFORE INSTALLING THE BLANKET.
6. PREPARE SLOPE SOIL SURFACE PER PLAN.
7. BURY THE TOP END OF THE BLANKET IN A TRENCH 6 INCHES DEEP AND 6 INCHES WIDE WITH A MIN. 12" OF FABRIC EXTENDING BEYOND UPSLOPE PORTION OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER SECURING.
8. SECURE THE BLANKET AT THE TOP TRENCH WITH A ROW OF STAKES PLACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
9. ROLL THE BLANKET ACROSS SLOPE AS DIRECTED BY OWNER'S REPRESENTATIVE.
11. THE EDGES OF ALL HORIZONTAL AND VERTICAL SEAMS MUST BE SECURED WITH A MIN. 12" OF OVERLAP.
12. ADDITIONAL HORIZONTAL BLANKETS SHALL BE JOINED USING A MINIMUM 12" OVERLAPPING OR SHINGLE STYLE IN THE DIRECTION OF WATER FLOW. PLACE STAKES MIN. 6" APART ALONG THE OVERLAPPING SEAMS.
13. KEY BLANKET INTO SUBGRADE AT BOTTOM OF SLOPE IN A 12" X 6" ANCHOR TRENCH. BACKFILL AND COMPACT TRENCH AFTER SECURING WITH STAKES EVERY 12".
14. INSTALL LIVE STAKES THROUGH COIR PER PLANTING PLAN.



STAKING PATTERN FOR HIGH FLOW

CHANNEL

(3.8 STAKES PER SQUARE YARD)

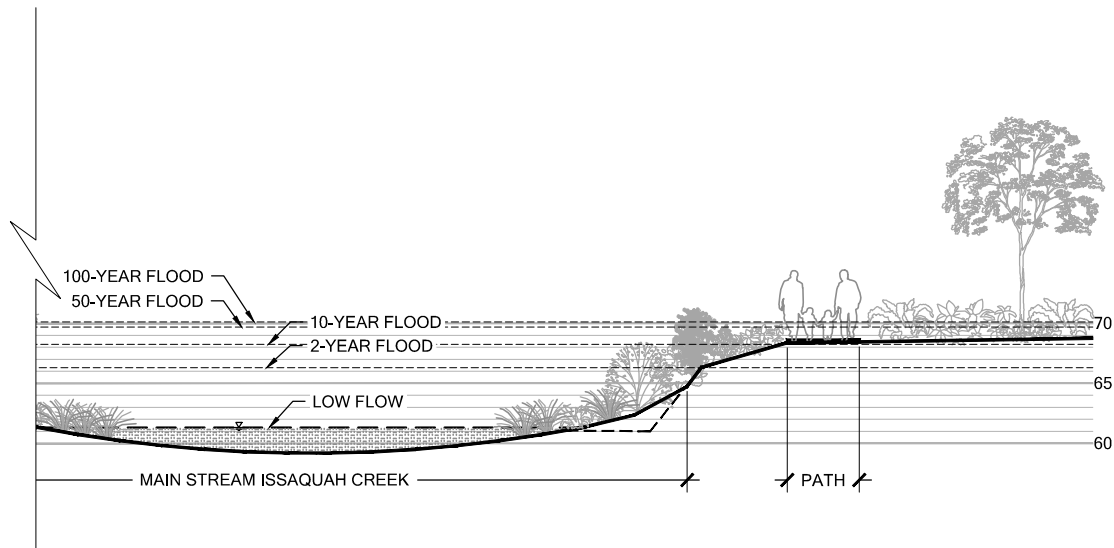
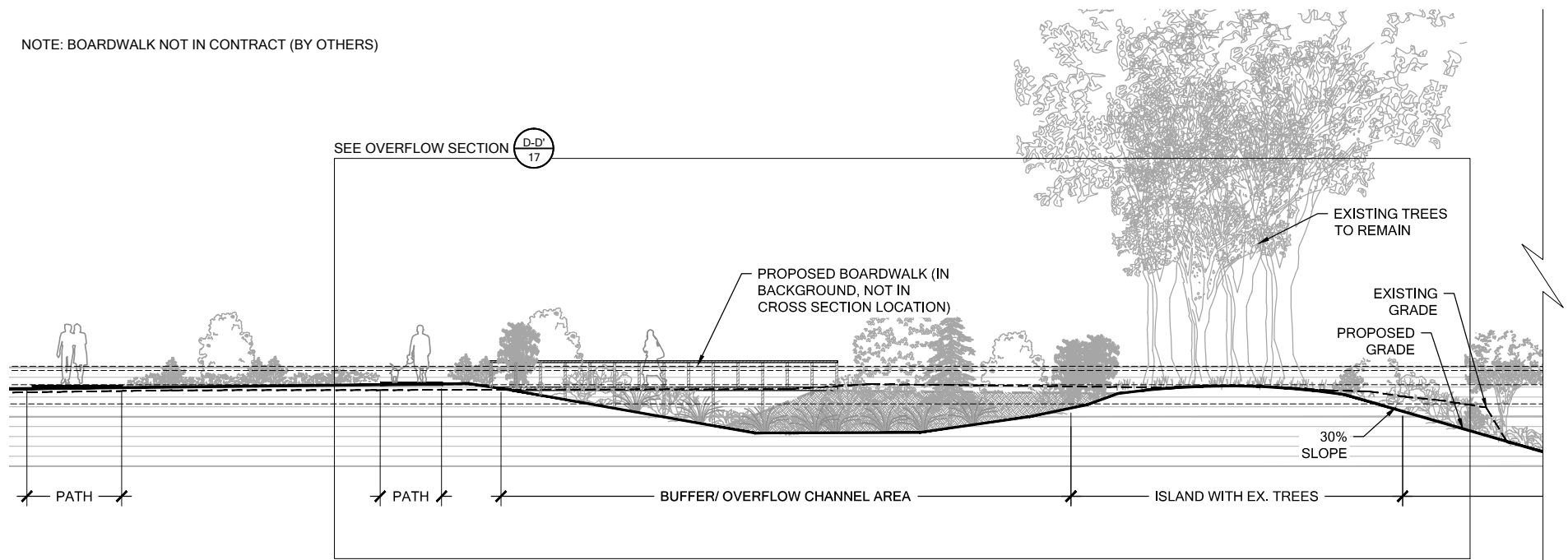
VERIFY WITH MANUFACTURER WARRANTY

COIR FABRIC INSTALLATION DETAIL

NTS

SLOPE STABILIZATION DETAIL

NOTE: BOARDWALK NOT IN CONTRACT (BY OTHERS)



(A-A')

STREAM RESTORATION CROSS SECTION ACROSS ISLAND

STREAM RESTORATION CROSS SECTIONS (1 OF 3)

SCALE: 1/16" = 1'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

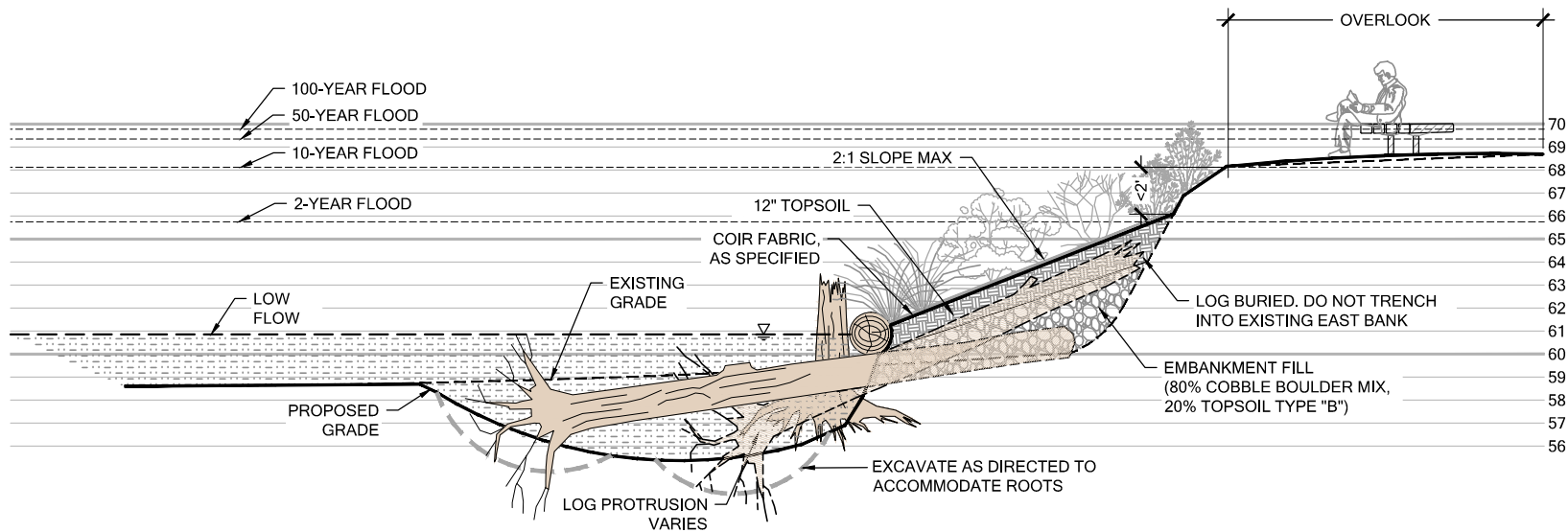
APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

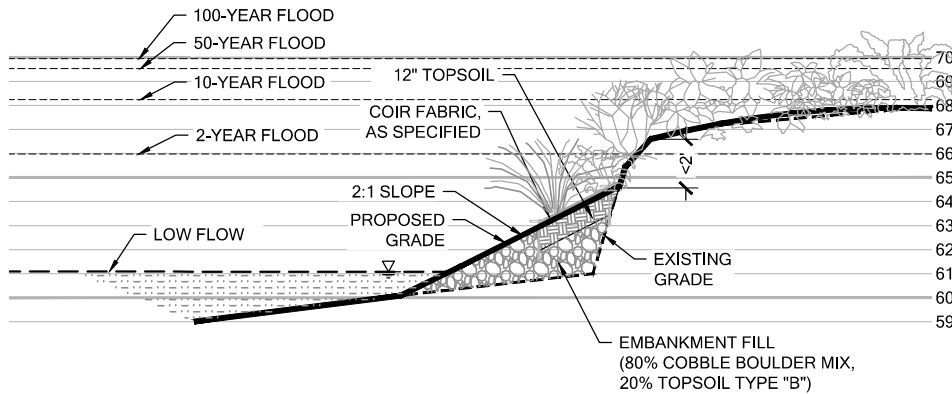
DATE: 6/10/15
SHEET: 15 OF 23

0 8' 16' 32'





B-B' TYPICAL FILL SECTION



C-C' TYPICAL FILL SECTION

STREAM RESTORATION CROSS SECTIONS (2 OF 3)

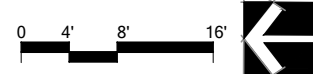
SCALE: 1/8" = 1'-0"

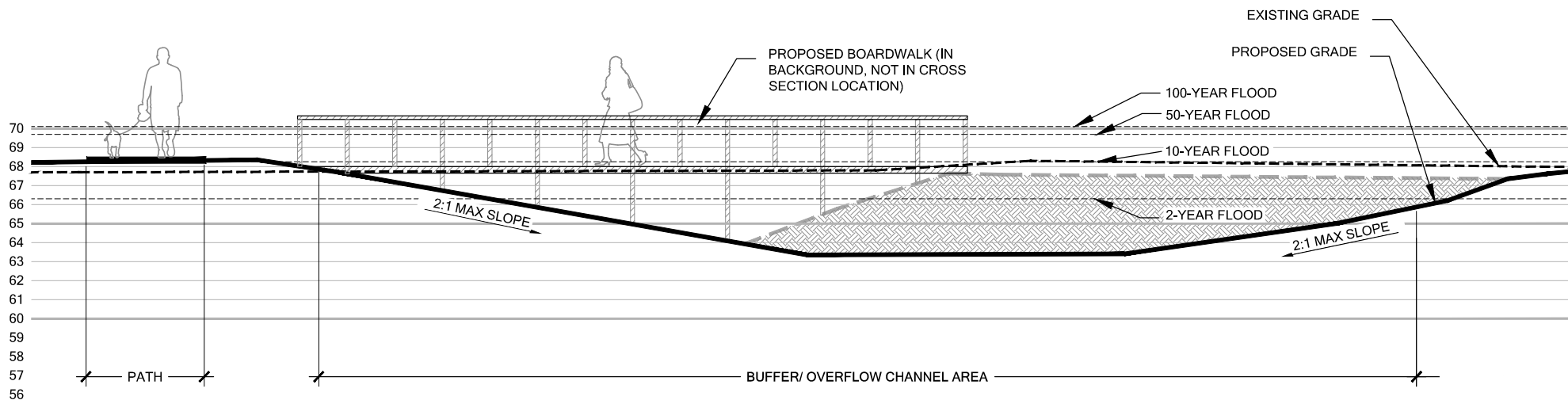
IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 16 OF 23





(D-D') OVERFLOW CHANNEL

STREAM RESTORATION CROSS SECTIONS (3 OF 3)

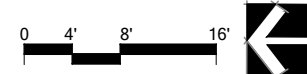
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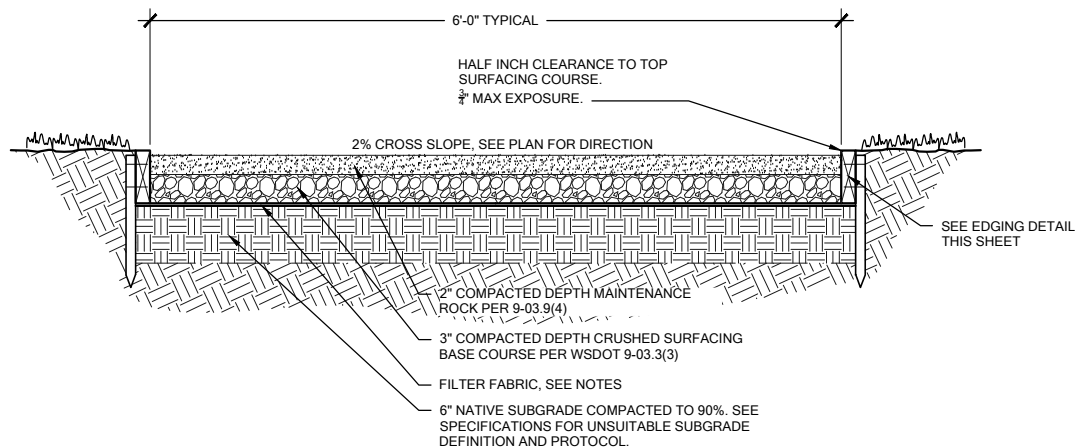
IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

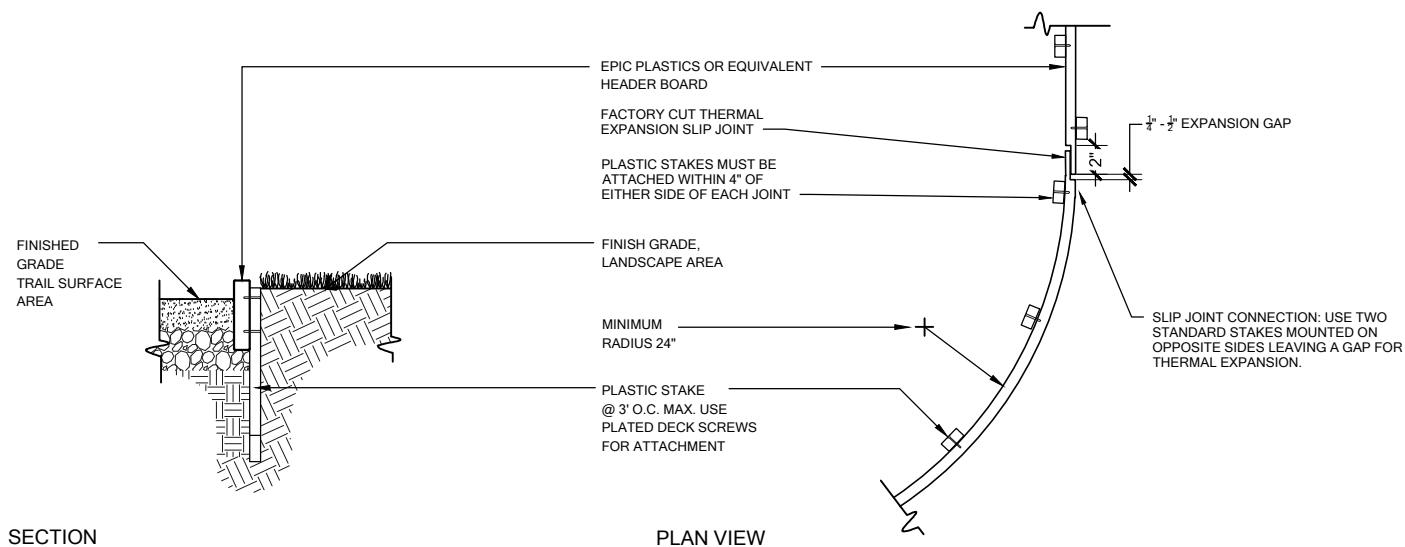
PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 17 OF 23





- NOTES:
1. COMPACT THE SUBGRADE SOIL TO 90% MOD. PROCTOR DENSITY COMPACTION.
 2. PLACE FILTER FABRIC ON PREPARED SUBGRADE (SPUN-BONDED POLYPROPYLENE, TYPAR GEOTEXTILES STYLE 3301 OR EQUIVALENT). ENSURE SURFACE IS CLEAR OF ANY WEEDS, ROOTS, OR DEBRIS PRIOR TO PLACING FABRIC.
 3. PLACE 3" CRUSHED SURFACING BASE COURSE PER WSDOT 9-03.3(3) @ 90% COMPACTION;
 4. PLACE 2" DEEP, MAINTENANCE ROCK PER 9-03.9(4) @ 90% COMPACTION
 5. CONTRACTOR SHALL WET THE SURFACE OF THE ROCK DURING COMPACTION TO HARDEN THE SURFACE
 6. INSTALL EDGING PER DETAIL.



SECTION

PLAN VIEW

HDR. SIZE	ACTUAL DIMENSIONS	MINIMUM RADIUS POSSIBLE	MAXIMUM CROWN POSSIBLE	THERMAL EXPANSION GAP AT SLIP JOINT
1X4	3 3/8" x 11/16" x 20'	24"	19" / 20'	1/4" - 1/2"

NOTE:

1. **DO NOT SCREW THROUGH SLIP JOINT**
2. USE COARSE WOOD WORKING TOOLS FOR CUTTING & DRILLING
3. USE PLATED SCREWS OR RING SHANK NAILS TO JOIN BOARD TO STAKE
4. ALLOW FOR THERMAL EXPANSION & CONTRACTION BY LEAVING GAPS IN THE SLIP JOINTS OR AT THE END OF THE RUN
5. STAKE APPROX 3' 0" OC (MORE FOR STRAIGHT RUNS, LESS FOR CURVES)

MANUFACTURED BY: EPIC PLASTICS, 104 EAST TURNER RD., LODI CA 95240

URL ADDRESS: www.epicplastics.com

AVAILABLE FROM JOHN DEERE LANDSCAPES, ISSAQUAH, WA, 425-557-3400.

A TRAIL
NTS

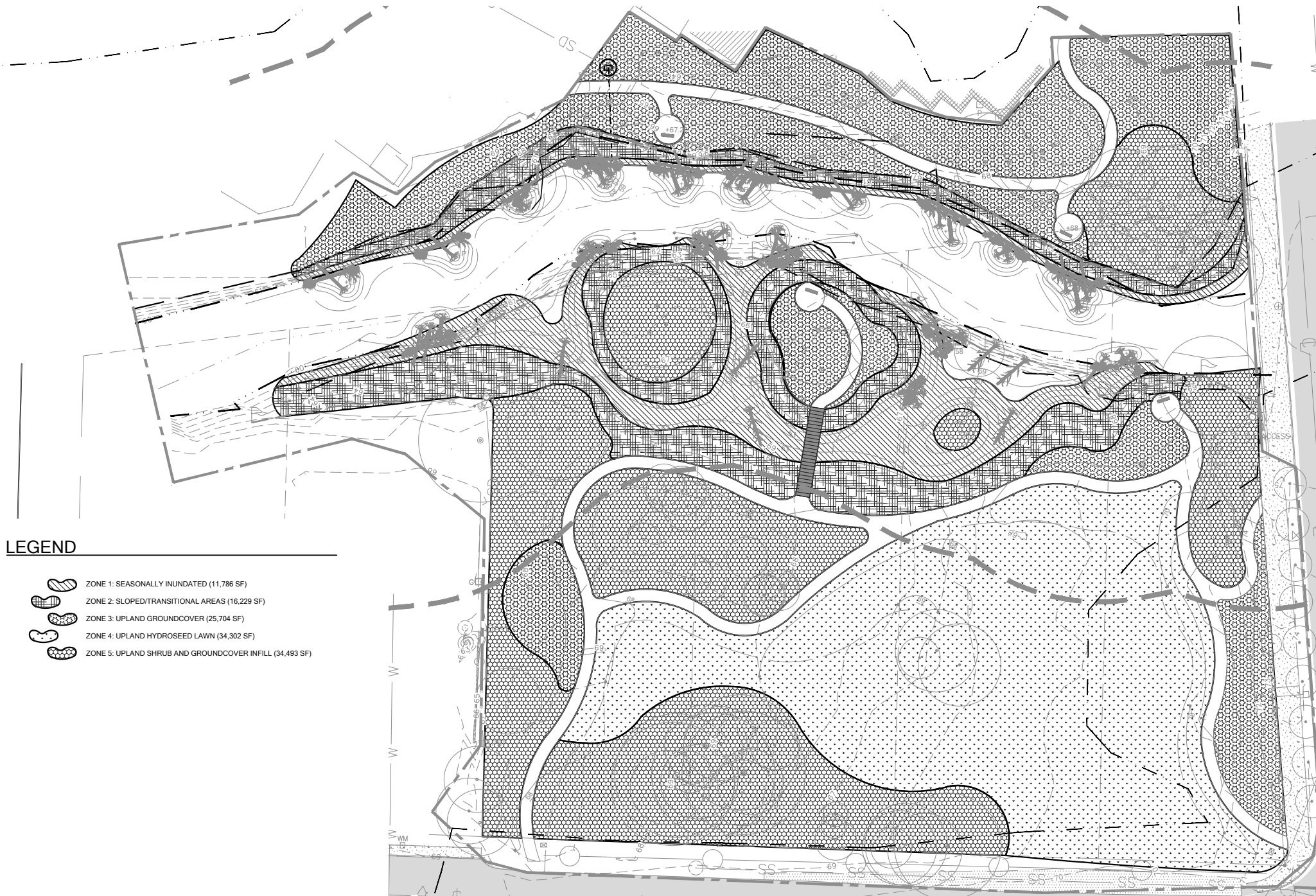
PARKS AMENITY DETAILS

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 18 OF 23



LEGEND

- ZONE 1: SEASONALLY INUNDATED (11,786 SF)
- ZONE 2: SLOPED/TRANSITIONAL AREAS (16,229 SF)
- ZONE 3: UPLAND GROUNDCOVER (25,704 SF)
- ZONE 4: UPLAND HYDROSEED LAWN (34,302 SF)
- ZONE 5: UPLAND SHRUB AND GROUNDCOVER INFILL (34,493 SF)

PLANTING AND SEEDING PLAN

SCALE: 1" = 60'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 19 OF 23

0 30' 60' 120'



<u>Latin Name</u>	<u>Common Name</u>	<u>Qty</u>	<u>Size</u>	<u>Spacing</u>
TREES				
<i>Acer circinatum</i>	Vine Maple	30	2 GAL	AS SHOWN
<i>Amelanchier alnifolia</i>	Serviceberry	25	2 GAL	AS SHOWN
<i>Betula papyrifera</i>	Paper Birch	15	2 GAL	AS SHOWN
<i>Fraxinus latifolia</i>	Oregon Ash	10	2 GAL	AS SHOWN
<i>Picea sitchensis</i>	Sitka Spruce	10	2 GAL	AS SHOWN
<i>Pseudotsuga menziesii</i>	Douglas-fir	10	2 GAL	AS SHOWN
<i>Rhamnus purhsiana</i>	Cascara buckthorn	90	2 GAL	AS SHOWN
<i>Thuja plicata</i>	Western Redcedar	10	2 GAL	AS SHOWN
<i>Malus Fusca</i>	Western Crabapple	30	2 GAL	AS SHOWN

SHRUBS				
<i>Berberis aquifolium</i>	Tall Oregon Grape	300	1 GAL	ASH SHOWN
<i>Cornus sericea</i>	Red-osier Dogwood	50	1 GAL	AS SHOWN
<i>Corylus cornuta</i>	Beaked Hazelnut	90	1 GAL	AS SHOWN
<i>Holodiscus discolor</i>	Oceanspray	200	1 GAL	AS SHOWN
<i>Lonicera involucrata</i>	Black Twinberry	50	1 GAL	AS SHOWN
<i>Physocarpus capitatus</i>	Pacific Ninebark	50	1 GAL	AS SHOWN
<i>Ribes sanguineum</i>	Red Flowering Currant	50	1 GAL	AS SHOWN
<i>Rosa gymnocarpa</i>	Baldhip Rose	350	1 GAL	AS SHOWN
<i>Rosa nutkana</i>	Nootka Rose	50	1 GAL	AS SHOWN
<i>Rubus spectabilis</i>	Salmonberry	50	1 GAL	AS SHOWN
<i>Sambucus racemosa</i>	Red Elderberry	30	1 GAL	AS SHOWN
<i>Symphoricarpus albus</i>	Snowberry	350	1 GAL	AS SHOWN
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	380	1 GAL	AS SHOWN

<u>Latin Name</u>	<u>Common Name</u>	<u>Qty</u>	<u>Size</u>	<u>Spacing</u>
GROUND COVER				
<i>Fragaria chiloensis</i>	Beach Strawberry	150	4" POT	18" O.C.
<i>Dicentra formosa</i>	Bleeding Heart	250	4" POT	24" O.C.
<i>Arctostaphylos uva-ursi</i>	Kinnickinnick	1200	4" POT	24" O.C.
<i>Athyrium felix-femina</i>	Lady fern	150	1 GAL	24" O.C.
<i>Berberis nervosa</i>	Dull Oregon Grape	1050	1 GAL	24" O.C., PLANT IN CLUSTERS OF 30
<i>Deschampsia caespitosa</i>	Tufted hairgrass	585	1 GAL	24" O.C.
<i>Festuca idahoensis</i>	Idaho Fescue	585	1 GAL	24" O.C.
<i>Gaultheria shallon</i>	Salal	200	1 GAL	24" O.C., PLANT IN CLUSTERS OF 30
<i>Polystichum munitum</i>	Sword Fern	200	1 GAL	24" O.C., PLANT IN CLUSTERS OF 30
LIVE STAKES				
<i>Cornus sericea</i>	Redtwig Dogwood	675	1/2" THICK MIN, 4' STAKE	24" O.C., PLANT IN CLUSTERS OF 25
<i>Lonicera involucrata</i>	Black Twinberry	670	1/2" THICK MIN, 4' STAKE	24" O.C., PLANT IN CLUSTERS OF 25
<i>Physocarpus capitatus</i>	Pacific Ninebark	650	1/2" THICK MIN, 4' STAKE	24" O.C., PLANT IN CLUSTERS OF 25
<i>Populus balsamifera</i>	Black Cottonwood	150	1/2" THICK MIN, 4' STAKE	36" O.C., PLANT IN CLUSTERS OF 25
<i>Salix Hookeriana</i>	Hooker's Willow	100	1/2" THICK MIN, 4' STAKE	36" O.C., 24" O.C., PLANT IN CLUSTERS OF 25
<i>Salix lucida ssp. Lasianдра</i>	Pacific Willow	100	1/2" THICK MIN, 4' STAKE	36" O.C., 24" O.C., PLANT IN CLUSTERS OF 25
<i>Salix sitchensis</i>	Sitka Willow	100	1/2" THICK MIN, 4' STAKE	36" O.C., PLANT IN CLUSTERS OF 25
EMERGENT SEED MIX				
27% <i>Carex obnupta</i> 30% <i>Carex stipata</i> 15% <i>Eleocharis palustris</i> 18% <i>Scirpus microcarpus</i> 10% <i>Juncus tenuis</i>	Slough Sedge Awl Sedge Creeping Spike Rush Small Fruited Bulrush Slender Rush	14 LB	.5 LB/ 1000 SF	28,015 SF, AREA TO BE HANDSEEDED. MIX AVAIL. FROM SUNMARK SEEDS.
LAWN HYDROSEED MIX				
60/20/20 <i>Lawn Seed Mix</i> 60% <i>Perennial Ryegrass</i> 20% <i>Hard Fescue</i> 20% <i>Kentucky Bluegrass</i>		225 LB	6-7 LB/ 1000 SF	34,302 SF

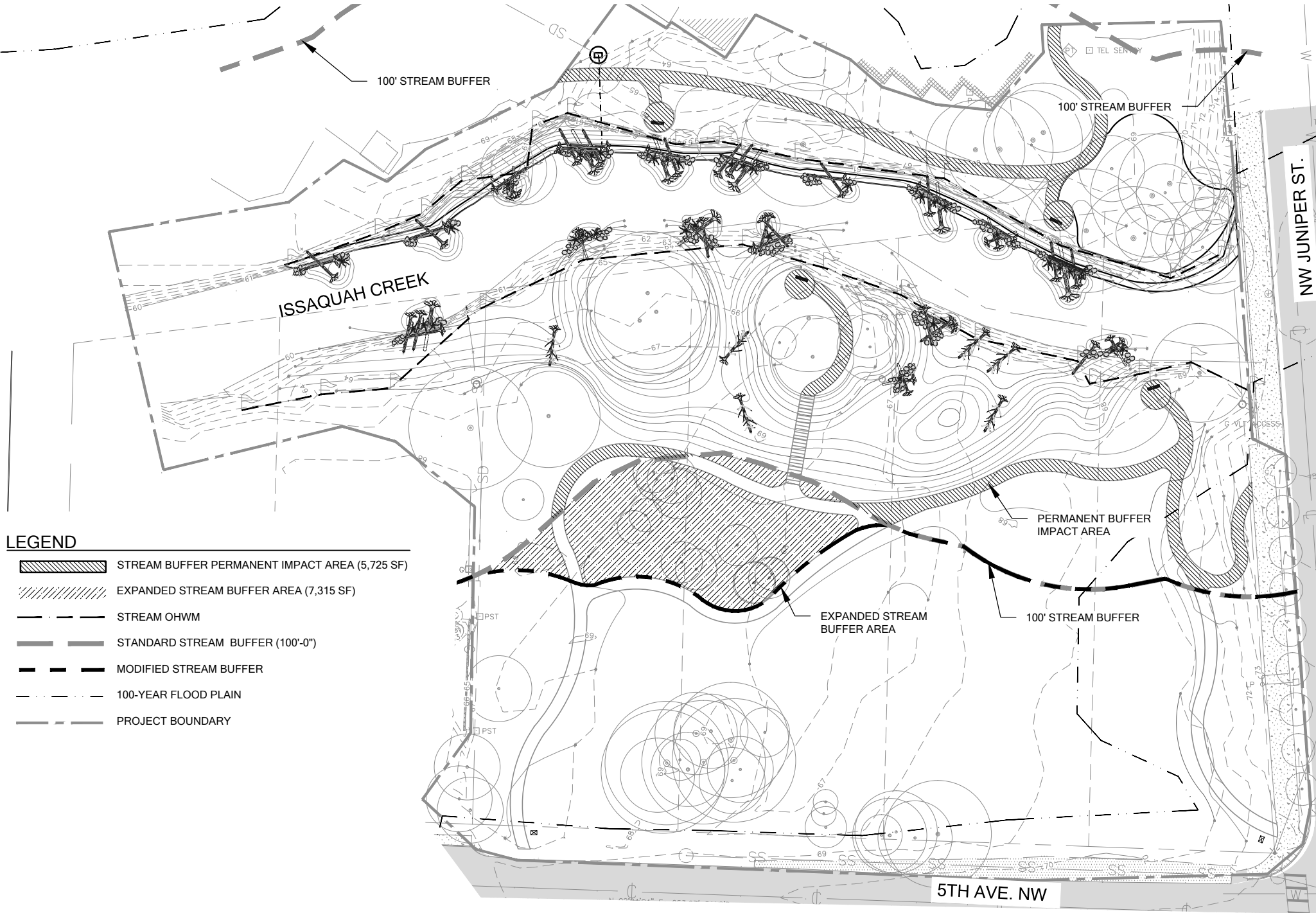
PLANTING AND SEEDING SCHEDULE

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 20 OF 23



IMPACTS & MITIGATION PLAN

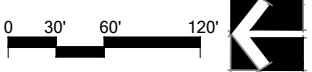
SCALE: 1" = 60'-0"

IN: ISSAQUAH, WA REF #: 2015-
AT: ISSAQUAH CREEK

APPLICANT: CITY OF ISSAQUAH

PROPOSED: STREAM RESTORATION
FOR FISH HABITAT ENHANCEMENT

DATE: 6/10/15
SHEET: 21 OF 23



CONSTRUCTION SEQUENCE

Note: Plant material and trail installation to be done by others.

SITE PREPARATION, CLEARING & GRUBBING

The Contractor shall:

1. Notify Restoration Consultant two weeks prior to start of work to set up a preconstruction meeting at the site.
2. Prior to the start of construction:
 - Obtain and verify all necessary easements and access authorizations for all construction activities.
 - Survey and stake the limit of work.
 - Locate all existing utilities within the limit of work and relocate conflicting utilities as needed to complete the plan. Note, there is an existing stormwater outfall along the right bank below the existing parking lot. This pipe shall be extended such that it discharges to the creek following reconstruction of the vertical bank at that location per the plans.
 - Install construction entrance(s), and all other temporary erosion control measures, general and site-specific, as noted on the plans and supporting documents or as required by various permits and authorizations. Maintain as necessary for the duration of the project.
3. Identify and demarcate the limits of project grading and mark trees and any other vegetation to be saved and install protection measures per the project plans.
4. Coordinate with the Restoration Consultant for Clearing and Grubbing approvals. The Restoration Consultant shall supervise clearing and grubbing including:
 - Approval of the limit of work boundary.
 - The protection of vegetation designated to remain.
 - Vegetation to be removed. Note: trees to be removed may be chipped, stockpiled, and covered for future use on site as wood chip mulch or hauled away at the contractor's discretion. All other vegetation shall be treated/removed as noted in the Project Special Provisions.

- The final cleared area.
5. Note, this site has a lot of invasive species, including English ivy, Himalayan blackberry and knotweed. Removal of invasive species will be the contractor's responsibility and the contractor should be aware that ivy, blackberry, and knotweed must be treated during the active growing season and that grading of areas containing knotweed cannot occur until the knotweed has been effectively treated per the protocol below. Invasives species to be removed shall include, but not limited to: Himalayan blackberry, bindweed, yellow archangel, English ivy, English holly, reed canarygrass, knotweed, and laurel. Vegetation shall be carefully cleared to disturb as little of the topsoil as feasible and to avoid existing native vegetation designated to remain.
 - A. Within Planting Areas: Grub out and remove invasive crowns, rootballs and runners. Grubbed out remains shall be disposed of off-site. Note, for knotweed, English ivy and bindweed, see special removal protocols below. Note herbicide shall only be applied by a Washington state licensed herbicide applicator. Use only herbicides approved for use in aquatic areas.
 - B. Outside of Mitigation Planting Areas: Cut back all invasive weed thickets adjacent to planting areas to a distance of ten (10) feet beyond all mitigation planting areas (including outside the limit of work, as applicable) to prevent encroachment while being careful not to disturb native vegetation.
 - C. Within the dripline of trees to remain: Clearing shall be done by manual means. No equipment on tracks or wheels shall be used in these areas. Small motorized tools such as hand-held trimmers used by trained personnel may be allowed as approved by the Restoration Consultant.
 - D. Stumps: Invasive stumps shall be removed to the greatest extent feasible. Any stumps that cannot be removed without doing damage to vegetation designated to remain or destabilizing the slope shall be treated with an appropriate, approved herbicide to prevent resprouting.
 - E. Knotweed Removal Protocol Herbicide application is proposed to control Japanese/bohemian knotweed. Application shall

- be conducted only during the active growing season (April through August). Application for Japanese/bohemian knotweed shall be as follows:
1. Cut all knotweed canes to a two (2) foot height. Let knotweed canes dry until fully desiccated on-site.
 2. Do not transport live knotweed. Do not grub roots of knotweed. All parts of the knotweed plant can resprout when live.
 3. Apply herbicide using the stem injection technique. Note that glyphosate is the only herbicide approved for stem injection.
 4. Apply herbicide during the active growing season (May through August). If application is not possible during the active growing season, cut canes to the ground and plant per the planting plan and mulch as directed. Herbicide is then to be applied during the upcoming active growing season, following re-sprouting of new knotweed shoots.
 - F. English Ivy Removal Protocol: Ivy can resprout from below-ground portions, so all roots shall be grubbed out. Ivy shall be cut around the base of each tree, to prevent girdling. Remove standing vines from every tree trunk that contains any ivy to a height of eight (8) feet up the trunk from finish grade. Note: if herbicide is to be used on re-sprouted ivy, then it shall occur through a spot application or wick application during the active growing season (April through August). After application, all ivy root masses will still need to be removed after herbicide has taken effect.
 5. Bindweed (aka Morning Glory, Convolvulus arvensis) Removal Protocol: Herbicide application is proposed to control bindweed. Application shall be through a spot application or wick application during the active growing season (April through August). All bindweed vines and root masses will still need to be removed after herbicide has taken effect.
 6. Once clearing and grubbing is complete, and invasive species have been treated and completely removed and disposed of off-site, the contractor shall strip the top seven (7) inches of topsoil from areas to be graded and stockpile for future reuse as Topsoil Type B per these plans and per the Special Provisions. Approximately 1,500 cubic yards will be

required. Prepare the topsoil prior to reuse per the Special Provisions.

GRADING AND STREAM CHANNEL WORK SEQUENCE

The Contractor shall:

1. Leave an earthen plug of undisturbed materials between the existing stream channel and excavated flood plain areas below the water surface elevation to prevent the premature diversion of streamflow into those newly excavated floodplain areas. Create and maintain a sump in each such new floodplain area during excavation to retain any silt-laden water that collects as a result of excavation activities. Collected silt-laden seepage water is to be pumped to upland areas for biofiltration and/or infiltration.
2. Complete rough excavation and grading activities consistent with the grading plan for the entire new side channel, channel widening, flood plain areas, and trail and overlook areas. Graded areas shall be over-excavated as necessary to allow for the placement of cobble/boulder mix, topsoil, and above-water log structures. All planting areas shall be over-excavated to a depth of six (6) inches to allow for the placement of Topsoil Type B except Zone 1 planting areas. Stockpile subsoil in sufficient quantity as-needed to complete final grading and filling activities. Stockpiled subsoil shall be kept separate from topsoil.
3. Place the above-water log and rootwad structures, associated anchors, and any cobble/boulder mix at the locations indicated across the new floodplain and side channel area as shown on the plan view and at the direction of the Restoration Consultant according to the appropriate details and specifications. To reduce the potential for fish stranding, no pools are to be formed around flood plain wood. Log structures are to be placed and constructed primarily using a track hoe.
4. Remove the earthen plugs separating the excavated floodplain areas from the active creek channel.
5. For log structure placement and pool formation along the existing Issaquah Creek channel:
 - A. Isolate the individual work areas for each log structure or cluster by constructing a supersack coffer dam or sediment curtain barrier starting upstream of and on the same bank as the

OVERALL CONSTRUCTION SEQUENCE (1 OF 2)

IN: ISSAQUAH, WA	REF #:	2015-	APPLICANT:	CITY OF ISSAQUAH	PROPOSED:	STREAM RESTORATION	DATE:	6/10/15
AT: ISSAQUAH CREEK						FOR FISH HABITAT ENHANCEMENT	SHEET:	22 OF 23

proposed work area, making an arc around the work area without spanning the entire channel, and ending on the same bank downstream of the work area. Such barriers will force active, low stream flow against the opposite bank from the proposed work activities.

B. Any fish isolated in the localized in-stream work areas will be safely removed, before and during dewatering (see next item below), by the Restoration Consultant. Given the size and characteristics of Issaquah Creek, it is expected that stranded fish can be located and captured primarily using seining and dipnets, with electrofishing as a backup. Captured fish are to be released in unaffected reaches upstream and downstream of the work area.

C. Following isolation and initial fish removal efforts, work areas are to be dewatered sufficiently to allow excavation of the stream bed and/or banks and log structure placement without introducing silt-laden water to Issaquah Creek. At a minimum, water in the work area is to be maintained at a level at least six (6) inches below the level of the adjacent stream surface to ensure a positive flow into, rather than out of, the work area. Dewatering is to occur in coordination with fish removal efforts such that adequate opportunity for fish removal is provided during the dewatering process. Such initial and ongoing work area dewatering shall occur by pumping water from each work area to upland areas suitable for discharge, biofiltration, and/or infiltration. In no case is silt-laden water to re-enter Issaquah Creek outside of isolated work areas. Create temporary sumps in the streambed as needed and/or pump from depressions formed in association with pool formation, as described below. Water from initial dewatering may be relatively clean, however water pumped during ongoing dewatering efforts during bed excavation, bank excavation, and log placement are likely to be silt-laden and so in need of treatment as described.

D. Excavate depressions in the stream channel bottom to accommodate the placement of the proposed log structures. Generally, sufficient space is to be provided to allow the roots of log structures to be entirely submerged at low

stream flow and pools are to be at least two (2) feet deep, subject to modification to accommodate roots as specifically directed by the Restoration Consultant. See plans for dimensions of structures extending above the channel and ground surface. Material excavated from the channel may be re-used in and around the overbank near the logs structures as directed.

E. Install, and anchor where indicated, the in-stream and floodplain log habitat features in the stream channel according to plan specifications and at the direction of the Restoration Consultant. Make sure logs are placed low enough to allow a sufficient level of submersion, as specified above and on the plan details. Modify or remove short sections of filter fencing if and where necessary to allow log structure placement.

F. Place cobble/boulder mix and embankment fill as shown on the plans along both streambanks and as directed in the field by the Restoration Consultant. Remove all of the work area isolation, flow diversion, and sediment control features as work is completed at each work area, proceeding from downstream to upstream, to allow the stream to flow through the completed channel section.

G. Repeat these steps for each separate in-stream work area.

6. After rough grading, stake out the center line of all trail areas for Restoration Consultant approval.

7. After trail layout approval, begin excavation for the trail. The contractor shall notify the Restoration Consultant if unsuitable foundation is discovered prior to it's excavation and prior to the import of any ballast to replace unsuitable foundation. Compensation will not be made for the import of ballast without approval of the Restoration Consultant and/or the City prior to its delivery on-site. Contractor shall also arrange for a subgrade inspection prior to the placement of trail edging or surfacing materials.

8. Install trail edging and staking per detail.

9. Install trail surfacing and compact per detail.

SOIL PREPARATION

The Contractor shall:

1. Prepare the subgrade of planting and seeding areas. Prior to the placement of topsoil or soil amendment, all construction stabilizing materials, all rocks larger than two (2) inches, foreign and inorganic objects shall be removed from the subgrade.
2. Obtain approval from the Restoration Consultant on the subgrade condition prior to placement of topsoil or amendment.
3. All tree, shrub and or groundcover/planting areas that have been graded shall receive six (6) inches of Topsoil Type B, approximately 1,330 cubic yards, except Zone 1 planting areas. Zone 1 planting areas will be inundated and will also receive siltation, so placement of topsoil is not needed. Areas where no grading occurs will not have been stripped and therefore will not need Topsoil Type B except to fill in holes. An additional 170 cubic yards shall be used to fill in holes and divots throughout the project area to create a more level park site.
4. All planting and lawn areas shall receive one (1) inch of soil amendment, except Zone 1 planting areas. Zone 1 planting areas shall receive no amendment.
5. After placement of amendment and Topsoil Type B, all planting and seeding areas shall be rototilled to a soil depth of twelve (12) inches throughout except within the dripline of trees to remain. Decompaction and incorporation of amendment within tree driplines shall be done manually, being careful not to avoid large tree roots.
6. Following soil preparation, do not track-pack prepared soils. Soils should be left as-is.

SEEDING AND MULCHING

The Contractor shall:

1. After soil preparation, be responsible for hydroseeding all lawn areas adn mulching all planting areas except for Zone 1 where soils will be inundated and no topsoil shall be placed.
2. Seed installation shall ideally be performed during the following time periods for best survival:
 - March 1 through May 15
 - September 1 through October 1

MATERIAL SPECIFICATIONS:

Cobble Boulder Mix: Cobble Boulder Mix, as specified for this project, shall consist of well-graded, rounded or sub-rounded gravel, cobbles, and small boulders, including fines, and conforming closely to the following size gradation by weight:

12 to 30 inch	15%
5 to 12 inch	30%
1.5 to 5 inch	30%
0.5 to 1.5 inch	15%
< 0.5 inch	10%

Embankment Fill: Embankment fill shall consist of 80% Cobble Boulder Mix and 20% Topsoil Type B, thoroughly mixed.

Logs with Rootwads Attached: All logs shall be locally native cedar or fir conifer trees (no hemlock or deciduous) with their rootwads intact. These trees are to be a minimum length of 22 feet and have a minimum diameter at breast height of 16 inches. Logs may be supplied and placed with limbs attached, however such limbs are to be trimmed as directed by the stream restoration consultant as needed to allow for a snug fit against the stream bed and banks and/or against other stream channel features including other placed logs. Individual roots may also be trimmed for secure placement purposes at the direction of and with the concurrence of the stream restoration consultant. The root wads of all logs are to be thoroughly power-washed at an upland location where all of the generated runoff can infiltrate prior to log placement within the stream channel.

Mulch: Mulch shall meet WSDOT 2014 Standard Specifications for "9-14.4(4) Wood Strand Mulch".

Rootwads: Rootwads shall be sound, native cedar or fir, supplied with attached trunks five (5) to seven (7) feet in length above the ground line as the tree grew and a minimum of 18 inches in diameter four (4) feet above the ground line. Root masses shall be full and dense to a minimum of six (6) feet in diameter. Root wads are to be thoroughly power-washed at an upland location where all of the generated runoff can infiltrate prior to placement within the stream channel.

Soil Amendment: Soils shall be amended with "Fine Compost" per WSDOT 2014 Standard Specifications "9-14.4(8) Compost".

Topsoil Type B: "Topsoil Type B" shall be native topsoil taken from within the project limits only from the areas where grading is proposed. Clear and grub grading areas per Section 2.01 prior to topsoil stripping. All rocks larger than three (3) inches, foreign and inorganic objects and debris shall be removed from the topsoil prior to its placement per plan.

OVERALL CONSTRUCTION SEQUENCE (2 OF 2)